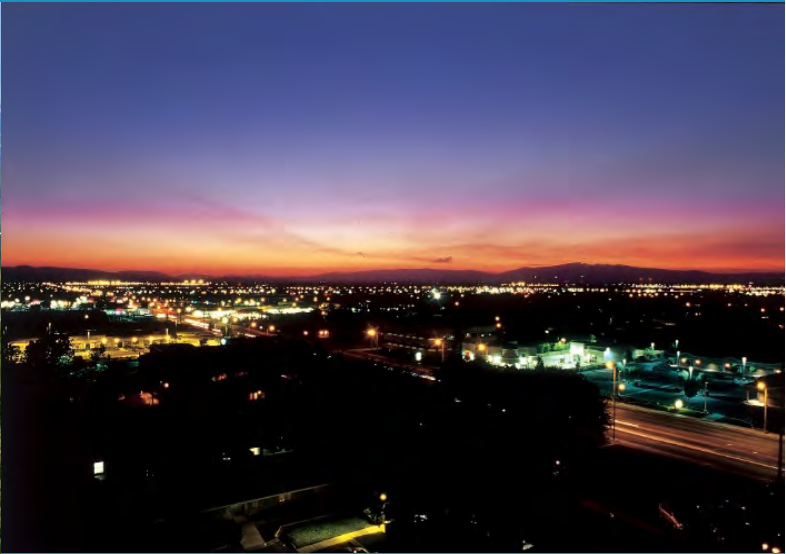Exhibit 16

An Analysis of Racial/Ethnic Disparities in Stops by Los Angeles County Sheriff's Deputies in the Antelope Valley

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John Macdonald
Department of Criminology and Sociology
University of Pennsylvania
johnmm@sas.upenn.edu

Steven Raphael
Goldman School of Public Policy
University of California, Berkeley
stevenraphael@berkeley.edu

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EXECUTIVE SUMMARY

The 2015 Settlement Agreement between the US Department of Justice and the Los Angeles County Sheriff's Department (LASD) calls for a semi-annual report analyzing data from the Antelope Valley (AV) stations of Lancaster and Palmdale on stops made by sheriff's deputies, incidents involving use of force, civilian complaints, and housing voucher holder compliance checks involving LASD personnel. The Settlement Agreement specifically calls for an analysis of disparities in outcomes by race and ethnicity, with the specific aim of assessing whether there are trends and patterns that indicate bias or practices that otherwise run counter to constitutional and effective policing.

This report documents the findings from an analysis of motor vehicle, bicycle, and pedestrian stops made during the first six months of 2019. The results are based on a dataset containing information on 20,537 stops and 22,545 members of the public involved in these stops. Approximately 46% of these stops are attributable to the Lancaster station, while the remaining 54% are attributable to the Palmdale station.

The report documents differences in the characteristics and outcomes of stops by the race/ethnicity of the person stopped. We focus on percentage point differences in outcome, such as the likelihood of a stopped person being asked about their probation status or the likelihood that a search resulted in a contraband discovery. In discussing these differences, we focus on both whether the disparities are statistically significant (e.g., whether they are unlikely to be observed by chance) and whether they are practically significant in terms of their magnitude (defined here as greater than 10% relative to a baseline value). This study also explores the sources of the differences, investigating whether the nature of the stop, the geography of the stops, or the deputies involved in the stops account for disparities that we find.

We begin with a descriptive analysis of the stop data, documenting how incidents vary by race and ethnicity, intergroup differences in the reasons for contact, racial/ethnic disparities in the likelihood of being searched and the stated authority for a person search, disparities in the likelihood of a back-seat detention, and disparities in the likelihood of the person stopped being asked about their probation or parole status. An analysis of stop outcomes follows, which begins by analyzing the likelihood of a contraband discovery, both for all stops and limited to the subset of stops where a search occurs. We then examine disparities in the likelihood of arrest, citation, and vehicle impoundment or storage.

Finally, we analyze how outcomes vary across geographic areas within the Antelope Valley and how outcomes vary by deputy. We match LASD reporting districts to publicly available crime data as well as to demographic data from the US Census Bureau and assess whether stop outcomes vary with local crime rates and variation in local residential demographic characteristics. The deputy-level examination presents the results from an analysis that creates internal benchmark comparisons for each deputy and assesses whether the outcomes observed

for a specific deputy are statistical outliers relative to comparable stops made by other deputies with similar shift and unit assignments.

This summary presents a high-level view of the results of our analysis and our conclusions. The technical report that follows provides more detailed analysis of the data and documents the methods used to generate the results presented in this summary.

I.   FINDINGS FROM THE DESCRIPTIVE ANALYSIS OF STOP CHARACTERISTICS

We present a two-part analysis of individuals stopped in the AV. First, we document characteristics of who is stopped, the nature of the stop, and what happens during the stop. This is followed by a detailed analysis of the ultimate outcome of the stop. Here we present an overview of the findings from the descriptive analysis.

A.   The Racial Composition of Stops

We begin by documenting the racial/ethnic composition of who is stopped by sheriff's deputies and how this composition compares to the demographic composition of AV residents. Figure ES1 shows the distribution of stops by race and ethnicity as well as the racial/ethnic distribution of the resident population.

Figure ES1

Racial/Ethnic Distribution of Stops Compared to
Racial/Ethnic Distribution of the Resident Population
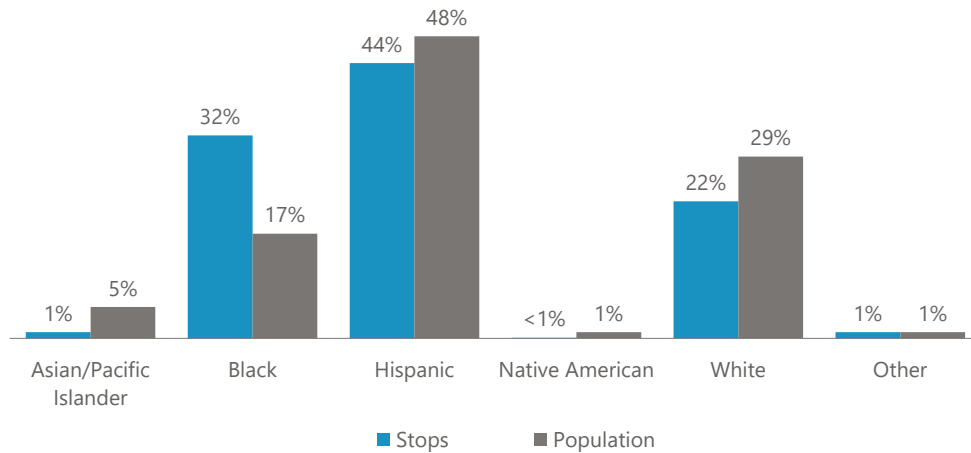
Black people are overrepresented among those stopped by deputies, with the percentage of stops that are of Black people double that of the resident population of the AV that identifies as Black. White people are underrepresented among stops relative to their percentage of the resident population, while Hispanic people are slightly underrepresented. Asians, Native Americans, and those who fall in the "other" category are also underrepresented relative to their share in the population. These additional groups, however, constitute a very small share of stops. Collectively, White, Black, and Hispanic members of the public account for 98.2% of those stopped by deputies during the period studied.

The comparison of the racial/ethnic composition of stops to the composition of the residential population does not account for many factors other than the race/ethnicity of individuals stopped that could affect differences in the level of police stops. For example, this comparison does not measure traffic accidents, speeding, calls for service, or other activity that may generate more stops in areas where Black people are more likely to be traveling in motor vehicles, on bicycles, or as pedestrians. As a result, we focus more attention on examining racial/ethnic disparities in what happens after a stop occurs.

B.   Disparities in the Reason for the Stop

Vehicle code violations account for the overwhelming majority of stops for all groups, with very small differences by race and ethnicity. By group, 86.3% of stops of Whites, 87.8% of stops of Blacks, and 88.8% of stops of Hispanics are prompted by a vehicle code violation. Looking specifically at these stops, we see large disparities by race/ethnicity and by race/ethnicity interacting with male or female genders in the nature of the vehicle code violations that generated the stops.

Table ES1 presents the distribution of vehicle stops across broad categories of violations within racial/ethnic groups. There are some notable differences in the reasons for a stop, primarily between Blacks and other groups. While approximately 55% of stops of Whites and 54% of stops of Hispanics are for moving/hazardous violations, the comparable figure for Blacks is 39%. Stops of Black people are considerably more likely to be for registration/equipment violations (54.6% for Blacks) relative to Whites and Hispanics (38.7% and 40.8%, respectively). Stops of Black men are the most likely to be for registration or equipment violations (57.6%), while stops of Hispanic women for that code are the least likely (29.8%). Men in general are more likely to be stopped for this reason relative to women.

Table ES1			
Reasons for Contact for Vehicle Code Violations by Race, Ethnicity, and Gender			
Reported Code	**White**	**Black**	**Hispanic**
Panel A: All Stops			
Bicycle	2.4%	2.1%	1.9%
Moving/Hazardous	54.7%	39.0%	53.5%
Registration/Equipment	38.7%	54.6%	40.8%
Other	4.2%	4.3%	3.8%
Panel B: Men			
Bicycle	3.4%	3.1%	2.7%
Moving/Hazardous	50.5%	34.6%	46.9%
Registration/Equipment	41.1%	57.6%	46.1%
Other	5.0%	4.8%	4.4%
Panel C: Women			
Bicycle	0.7%	0.3%	0.4%
Moving/Hazardous	62.0%	47.1%	67.1%
Registration/Equipment	34.7%	49.2%	29.8%
Other	2.7%	3.4%	2.8%

Note: Individual columns within each panel sum to 100%.

C.   Racial Disparities in the Likelihood of Being Searched

Table ES2 shows the percent of persons who were searched during stops by deputies by race/ethnicity and according to whether the stopped person is a man or a woman. We classify searches using three separate categorizations: whether any search occurs (either of one's person or vehicle), whether the person is searched, and whether the vehicle involved in the stop is searched. Blacks are the most likely to be searched. This is true for both person searches and vehicle searches. For example, while 26.3% of stops of Whites result in a search, the comparable figure for Blacks is 30.3%. This difference is driven entirely by a higher propensity of deputies to search Black men. Search rates for stops of White and Black men equal 32.1% and 38.3%, respectively. Among men, Blacks are more likely to be searched due to "odor of contraband," as a condition of parole/probation, and for a weapons patdown. White men are slightly more likely to be searched incident to arrest, due to a consent search, and due to evidence of criminal activity.

Table ES2			
Percentage of Stops Involving a Search by Race/Ethnicity and Gender			
Race/Ethnicity	**Any Search**	**Person Search**	**Vehicle Search**
Panel A: All Stops			
White	26.3%	23.8%	14.2%
Black	30.3%	26.6%	18.3%
Hispanic	26.0%	22.7%	15.5%
Panel B: Stops of Men			
White	32.1%	30.3%	15.9%
Black	38.3%	35.4%	22.2%
Hispanic	31.5%	28.9%	17.7%
Panel C: Stops of Women			
White	15.6%	11.8%	11.0%
Black	14.7%	9.3%	10.8%
Hispanic	13.7%	9.0%	10.5%

In addition to documenting the overall difference in the likelihood of a search, in the technical report we explore in detail the extent to which average differences in stop characteristics explain these race disparities in search rates. This analysis reveals that the disparities are due in part to differences in where Blacks are stopped, but mainly due to differences in the deputies who tend to disproportionately stop Blacks. That is to say, Black people stopped in the AV tend to be stopped by deputies who frequently conduct searches of the people they stop. However, we also find that deputies who frequently conduct searches during their stops on average do so in a race neutral manner. In other words, deputies who frequently initiate searches during stops of Black people behave similarly during stops of White and Hispanic people.

D. Backseat Detentions

Blacks and Hispanics are more likely to experience backseat detentions relative to White members of the public (Fig. ES2). These disparities are driven entirely by higher likelihoods for Black and Hispanic men relative to White men. Black and Hispanic women are slightly less likely to experience a backseat detention than are White women.

Figure ES2
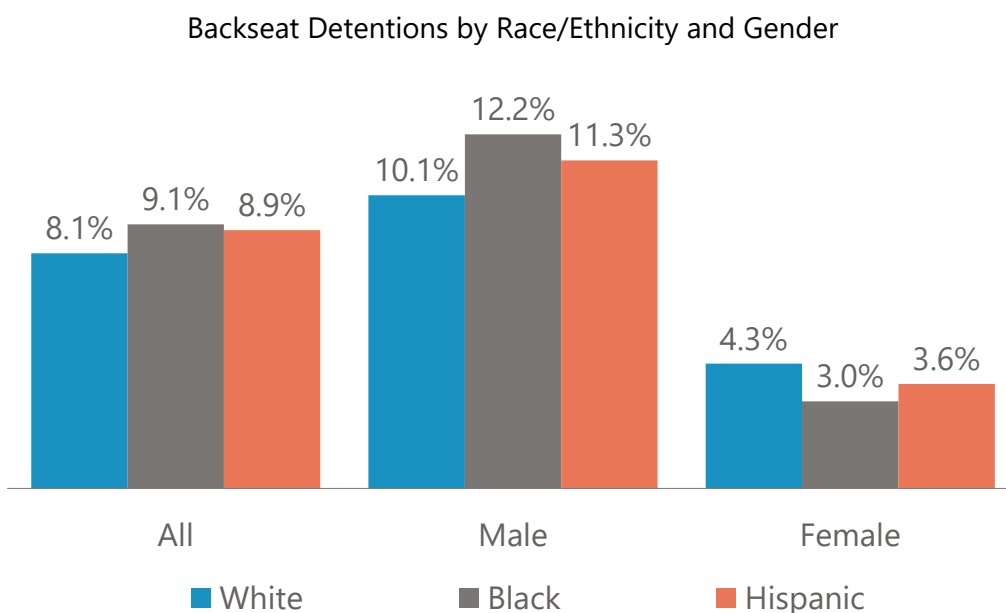
Backseat Detentions by Race/Ethnicity and Gender

The disparity in backseat detention rates is driven primarily by the fact that Blacks are more likely to be stopped by deputies who use backseat detention more frequently. Deputies who often use backseat detentions tend to do so for all members of the public regardless of race. In other words, deputies who use backseat detentions frequently for stops of Blacks and Hispanics also do so for stops of Whites.

E. Inquiries About Whether an Individual Is on Probation or Parole

Deputies frequently ask members of the public about their probation and parole status. Individuals on community corrections can be searched at any time based on their status alone, a practice that is common throughout the state. Indeed, such individuals are frequently searched by deputies. For example, among stops where the member of the public indicates that they are on probation or parole, 90% of Whites, 82% of Blacks, and 88% of Hispanics experience a search of some sort.

A downside of frequently asking this question is that many members of the public who are not on probation or parole may feel that they have been treated with disrespect and that they have been assumed to have a criminal history, perhaps due to their race or ethnicity. Moreover, the reactions to this line of questioning and the ultimate impact on community relations may differ across racial and ethnic groups.

To explore these issues, we document disparities in three outcomes: the percent of stops where the deputy asks the individual about their community corrections status, the percent of stopped individuals who are asked about their status who indicate that they are on probation or parole, and the percent of stops where the individual is both asked whether they are on probation or parole and answer that they are not. The reasoning behind analyzing these three outcomes is the following. The first outcome simply assesses whether certain members of the public are more likely to be asked this question than others, an issue that is specifically articulated in the Settlement Agreement as an indicator that should be monitored. The second outcome, the percent of people asked who actually are on probation or parole, provides an indicator of whether one group is being asked this question in a manner that does not reflect intergroup differences in the likelihood of being on probation or parole. To be specific, if members of Group A are asked this question more often than members of Group B, and when asked are less likely to indicate that they are on probation or parole, then one might conclude that deputies are asking this question too often of members of Group A. The third outcome, the percent of stops where a member of the public asked about their status indicates that they are not on community corrections, provides an indicator of the proportion of stops where the member of the public may walk away from the stop feeling as if law enforcement has assumed the worst of them. Note that even when discovery rates across groups of people on probation and parole are similar, this practice may generate large differences in the percent of stops where this question was asked unnecessarily, with potential consequences for community relations.

Blacks are much more likely to be asked about their probation/parole status (see Table ES3). Roughly 55% of stopped Blacks are asked if they are on probation or parole compared to 44% of Whites and 49% of Hispanics. These disparities are particularly large for males, with a disparity between Blacks and Whites in this question being asked of slightly more than 14 percentage points. Among those asked, Blacks and Hispanics are slightly less likely to be on parole or probation. We find that 47% of Blacks stopped by deputies are asked about their probation/parole status and answer that they are not on probation or parole. The comparable figures for Whites and Hispanics are 37% and 42%, respectively. More than half of Black men stopped are asked about their status and answer that they are not on probation or parole.

Table ES3			
Stopped Individuals Asked About Probation/Parole Status by Race/Ethnicity and Gender			
Race/Ethnicity	**All**	**Men**	**Women**
Panel A: Percent asked whether they are on probation/parole			
White	44.0	48.8	35.1
Black	55.2	62.9	40.3
Hispanic	48.8	55.9	32.2
Panel B: Percent on probation/parole among those asked about their status			
White	16.4	19.0	9.7
Black	15.6	17.7	9.1
Hispanic	14.2	14.9	11.4
Panel C: Percent not on probation/parole asked about probation/parole status			
White	36.8	39.6	31.7
Black	46.6	51.7	36.6
Hispanic	41.9	47.6	29.4

These disparities in the likelihood of being asked about probation/parole status are driven almost entirely by the fact that Black people are disproportionately stopped by deputies who ask this question at a high rate. An analysis of the data at the deputy level reveals a cluster of deputies who never ask, a cluster of deputies who always ask, and some who fall between these two extremes. Deputies who frequently or always ask are responsible for a disproportionate number of stops of Black people. Deputies who frequently ask about probation/parole status tend to do so for all stops regardless of the stopped person's race/ethnicity.

II.   FINDINGS FROM THE ANALYSIS OF STOP OUTCOMES

We document racial disparities in the ultimate outcomes of stops and explore the determinants of the differences we observe. We focus primarily on the differential incidence by race and ethnicity with which stops generate contraband discoveries, arrests, citations, and vehicle seizures. Analyses of stop outcomes often focus on these differential rates with an eye toward detecting whether one group is subjected to excessive stops or searched to a degree that is not justified by underlying behavior. By comparing the "hit rate" across groups, where a hit may be defined alternatively as discovering contraband, citing a driver for a hazardous traffic violation, or generating an arrest, one can assess whether the rates at which one group is being subjected to police scrutiny is disproportionate relative to some base rate at which the members of the group on average break the law.

For example, suppose that there are two groups of people: members of Group A and members of Group B. Suppose further that among those stops where a search is performed, contraband is discovered among members of Group A 10% of the time and among Group B members 20% of

the time. This pattern suggests that officers may be applying a lower probable cause threshold when deciding to search Group A members relative to Group B members, since searches of persons from Group A generate fewer contraband discoveries. Stated another way, the lower hit rate for Group A suggests that there are instances where Group A members are subject to searches that they would not experience if they were from the other group.

To be sure, the hit-rate incidence by group may in and of itself depend on deputy discretion depending on how a hit is defined. While contraband discovery is an outcome that should not reflect deputy discretion, arrest rate differentials across groups or differences in citation rates may certainly be driven by differential enforcement of the law. Moreover, how we define the set of stops that serve as the denominator for the hit-rate calculation will vary from outcome to outcome. For example, it is standard practice in the racial profiling literature to calculate contraband discovery rates based on the subset of stops where a search takes place. For citations, however, a search is not necessary to detect a vehicle code violation, and hence all stops may provide the appropriate set of interactions that are "at-risk" of generating a citation. In what follows, we present the incidence of outcomes for all stops and for various subsets of stops, usually based on whether a search occurs.

A.   Analysis of Contraband Discovery Rates

Figure ES3 displays the percent of stops where contraband is discovered. The figure presents contraband discovery rates for all stops, stops where any search occurs, and stops where a person search occurs. Deputies seize contraband in roughly 7% of stops of Whites, 5% of stops of Blacks, and 6% of stops of Hispanics. Among stops involving either a vehicle or person search, deputies seize contraband in 24.4% of White stops, 15.4% of Black stops and 22.3% of Hispanic stops. The disparities in search hit rates between Whites and Blacks are observed for men and women and are statistically significant. The smaller disparities between Hispanics and Whites are also observed for men and women yet are not statistically significant. These disparities are driven primarily by a much lower likelihood of discovering a controlled substance, as well as a relatively low likelihood of discovering illegal property, when stops of Black people result in searches.

Figure ES3

Percent of Stops Where Contraband Is Discovered by Race/Ethnicity
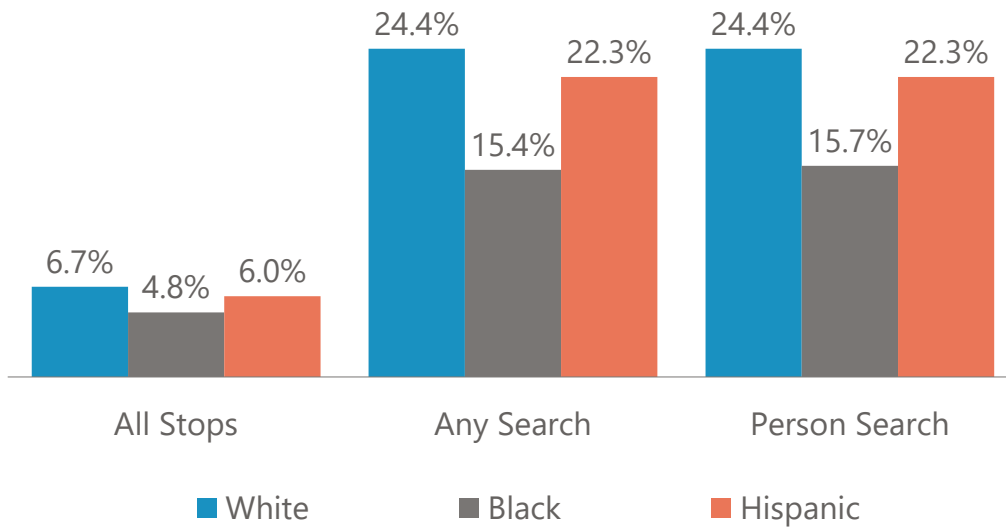
We present a detailed analysis in the technical report of the possible sources of these disparities. Specifically, to explain the generally lower hit rate for stops of Black people, the report we assess the potential role of differences in stated search authority; the type of stop; the reporting district where the stop was made; the age, gender, and probation/parole status of the stopped individual; and the specific deputies who make the stop. This analysis finds that disparities between Blacks and Whites in search hit rates largely remain after statistically controlling for these factors.

B.   Citations and Arrests

Stops of Black people are roughly 10 percent less likely to result in a citation or arrest than are stops of White or Hispanic people (Table ES4). Looking at citations and arrests separately, stops of Blacks are approximately 10 percentage points less likely to result in a citation compared with stops of Whites. This is driven by a 12-percentage point difference in the likelihood of a hazardous citation and a slightly higher likelihood of a non-hazardous citation for Blacks. These disparities are largest among males.

Table ES4					
Percent of Stops Resulting in a Citation and/or Arrest by Race/Ethnicity					
Race/Ethnicity	Citation and/or Arrest	Citation	Arrest	Felony Arrest	Misdemeanor Arrest
White	66.3%	54.0%	23.1%	5.4%	18.5%
Black	56.4%	43.7%	29.9%	4.6%	26.3%
Hispanic	63.2%	52.8%	24.8%	4.3%	21.3%

Regarding arrests, stops of Blacks are more likely to result in an arrest, driven entirely by differences in misdemeanor arrests, which often involve citation and release in the field. Given the high rate of misdemeanor arrests for Blacks, we decided to dig deeper into the data to provide a characterization of the incidents that are coded as involving a misdemeanor arrest. To do so, we drew random samples of 100 person stops involving a misdemeanor arrest for Whites, Blacks, and Hispanics (300 observations in total) and read through the narrative comment fields to identify the exact reason for the arrest. Misdemeanor arrests of Whites are considerably more likely to involve drug possession or drug paraphernalia relative to misdemeanor arrests of Blacks and Hispanics. White misdemeanor arrests are also more likely to involve driving under the influence. Blacks are most likely to experience a misdemeanor arrest for driving without a license or on a suspended license, driving with expired registration, and/or not having evidence of insurance. Roughly equal percentages of White and Black misdemeanor arrests involve an outstanding warrant, while Hispanic misdemeanor arrests are somewhat less likely to involve an outstanding warrant.

III.   ANALYSIS OF OUTCOMES BY GEOGRAPHY AND DEPUTY-LEVEL OUTLIER ANALYSIS

The Settlement Agreement also calls for an analysis of how outcomes vary across the geography of the Antelope Valley, with a specific focus on residential demographic composition and local crime rates. To perform this analysis, we merged the geography of LASD reporting districts with demographic data from the US Census Bureau's American Community Survey and publicly available crime data by reporting district. We use these data to conduct several analyses. First, we assess whether there is a relationship between the racial/ethnic composition of reporting districts and localized crime rates. While the result is far from perfect, our analysis finds that on average, crime rates tend to be higher in reporting districts with proportionally larger Black and Hispanic populations. However, this analysis revealed many instances of reporting districts with relatively large minority populations and low crime rates as well as reporting districts with small minority populations and high crime rates.

We also examine whether stop characteristics and outcomes differ across reporting districts after stratifying these districts into groups according to the crime rate and the percentage of residents who are Black. While we find few discernable patterns across reporting districts

stratified by crime rate, we do find that hit rates are low for searches made in predominantly Black reporting districts. However, felony arrests rates tend to be higher.

Finally, while Black and Hispanic stops are more likely to occur in higher crime reporting districts, the analysis found a fair degree of overlap in the geographic distributions of stops of Whites, Blacks, and Hispanics. This accords with the findings presented throughout the report of a limited role of geography in explaining the disparities that we observe.

The report concludes with an analysis of outcomes at the deputy level. We propose and implement a statistical strategy for comparing each deputy's stop outcomes against an internally generated benchmark based on the deputy's station, unit, and shift. The Monitoring Team cautions that this analysis should be conducted using an observation period greater than six months to improve precision and increase the number of deputies with sufficient numbers of stops to be included in the analysis.

IV.   CONCLUSIONS

A broad summary of the findings of this analysis is as follows. Blacks are much more likely to be stopped, are more likely to be searched when stopped, are more likely to experience a backseat detention, and are more likely to be asked whether they on probation or parole. Regarding the latter outcome, similar proportions of Whites, Hispanics, and Blacks asked about their community corrections status are indeed on probation or parole. However, the higher rate at which this question is asked of Black people in conjunction with their relatively high stop rate indicates that a larger share of the Black population who are not on community corrections has had the recent experience of being stopped by a sheriff's deputy and asked if they are on probation or parole.

Regarding stop outcomes, we observe substantially lower rates of contraband discovery among searches of Black citizens relative to searches of Hispanics and Whites. This is true for nearly all contraband types (e.g., drugs, illegal property) as well as for the stated authority for the search (e.g., incident to arrest, probation/parole status). Stops of Black people are less likely to result in a citation or arrest, though stops of Blacks are more likely to result in a misdemeanor arrest. Our analysis of the narrative fields of random samples of misdemeanor arrests by race revealed that large proportions of the misdemeanor arrests of Blacks involve driving without a license or on a suspended license, expired registration, or lack of insurance. A fairly large portion of misdemeanor arrests for all race/ethnic groups also involves a citation and release for outstanding warrants.

For several of these stop characteristics and outcomes, we present multivariate analyses attempting to understand the factors driving the differences we observe. For most outcomes, variations in where the stops occur explain little of the disparities by race. The analysis that focuses specifically on geography finds little evidence of systematic difference in stop outcomes when reporting districts are grouped by either local crime rates or by the racial composition of the resident population. The relatively small role of geography is perhaps not too surprising

given the large geographic overlap among the locations where Black, White, and Hispanic people are stopped in the valley.

In contrast to the minimal role of geography, we find that differences in which deputies are stopping Black as opposed to White and Hispanic residents explain much of the intergroup disparities. Black people are more likely to be stopped by deputies who frequently conduct searches, detain someone in the backseat, and ask whether the stopped person is on probation and parole. We must note that deputies who frequently use these tactics during their stops on average do so in a race neutral manner. In other words, deputies who frequently ask Black people about their community corrections status or who frequently initiate searches during stops of Black people behave similarly during stops of White and Hispanic people. Hence, among stops made by specific deputies, the data suggest that on average, members of the public from different racial and ethnic groups are treated equally. Moreover, the outlier analysis finds relatively few instances where deputy-specific outcomes differ substantially from our constructed internal benchmarks. However, the cross-deputy differences in tactics deployed during stops do generate disparate impacts, with Blacks experiencing more stops, searches, backseat detentions, and probing about their community correction status. The relatively lower hit rate for searches of Blacks cannot be explained by the deputies involved, the reporting district where the search occurs, or other characteristics such as the reason for the stop or the state authority for the search.

The analysis suggests several possible areas where action may be taken to narrow disparities in stops and stop outcomes. First, we document that Blacks are considerably more likely to be stopped for registration or equipment violations relative to White and Hispanic residents. This disparity may reflect a higher likelihood of such violations among Blacks, a higher likelihood that deputies stop Blacks for such violations, or some combination of the two. To be sure, racial disparities in the incidence of expired registration tags or an expired license are beyond the control of LASD deputies. However, some concerted and coordinated inter-agency effort (for example, between LASD and the DMV) to close such gaps would likely narrow racial disparities in the likelihood of being stopped and certainly racial disparities in misdemeanor arrests. Beyond such an effort, perhaps a station-level review of policy pertaining to such stops and when such stops should be escalated to searches is merited given (1) the high proportion of stops of Blacks that fall in this category, (2) the high search rate for Blacks, and (3) the relatively low contraband discovery rates for searches of Blacks.

Beyond differences in the reason for stops, our analysis suggests that heterogeneity across deputies in how stops proceed in conjunction with differential exposure to different deputies contributes to key racial disparities. It may be the case that differences by deputy reflect differential unit assignment or differences in the areas that are being policed. Moreover, it may be the case that these disparities can be justified by law enforcement need and public safety considerations. Nonetheless, some review regarding the discretion afforded in the use of searches or asking about probation/parole status (or perhaps some stationwide guidance on when these tools may not be necessary) may help narrow some of the disparities we document here.

I.   INTRODUCTION

The 2015 Settlement Agreement between the US Department of Justice and the Los Angeles County Sheriff's Department (LASD) calls for a semi-annual report analyzing data from the Antelope Valley (AV) stations of Lancaster and Palmdale on stops made by sheriff's deputies, incidents involving use of force, civilian complaints, and compliance checks of housing voucher holders that involving LASD personnel.[1] The AV lies in the northeast corner of the County of Los Angeles and includes two cities—Lancaster and Palmdale—and several unincorporated communities spread across hundreds of square miles. LASD provides law enforcement services in the unincorporated areas of the AV, as well as via contracts with Palmdale and Lancaster. Each of the cities has an LASD station serving that city, with law enforcement activities for the surrounding areas roughly split between the two. The Settlement Agreement specifically calls for an analysis of disparities in outcomes by race and ethnicity with the specific aim of assessing whether there are trends and patterns that indicate bias or practices that otherwise run counter to constitutional and effective policing.

This report documents the findings from an analysis of vehicle, bicycle, and pedestrian stops made during the first six months of 2019. The results are based on a dataset that identifies unique incident-citizen observations. Stops involving only one member of the public generate a single observation. Stops involving multiple citizens (for example, a vehicle stop with multiple passengers) generate multiple observations. For the period analyzed, there are 22,545 such observations corresponding to 20,537 separate stops. Approximately 46% of these observations

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[1]Settlement Agreement, No. CV 15-03174, *United States v. Los Angeles County et al.* (D.C. Cal. Apr. 28, 2015).

are attributable to the Lancaster station while the remaining 54% are attributable to the Palmdale station.

The report documents differences in the characteristics and outcomes of stops by the race/ethnicity of the person stopped. We focus on percentage point differences in outcome, such as the likelihood of a stopped person being asked about their probation status, the likelihood of a search, the likelihood of a contraband discovery, as well as the likelihood of an arrest or citation. In discussing these differences, we focus on both whether the disparities are statistically significant (e.g., whether they are unlikely to be observed by chance) and whether they are practically significant in terms of their magnitude (defined here as greater than 10% relative to a baseline value). We focus on both practical and statistical significance since in a large dataset like this one, with more than 20,537 stops, statistically significant differences can emerge when differences are relatively small in magnitude.[2]

We begin with a descriptive analysis of the stop data, documenting how incidents vary by race and ethnicity, intergroup differences in the reasons for contact, racial/ethnic disparities in the likelihood of being searched and the stated authority for a person search, disparities in the likelihood of a backseat detention, and disparities in the likelihood of the stopped person being asked about their probation or parole status. Throughout, we present separate tabulations

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[2] For example, Kaye and Freedman (2011) note that the term statistically significant is "merely a label for a certain kind of p-value" is not meant to convey whether a difference is "legally or practically significant. Statisticians distinguish between statistical and practical significance to make the point. When practical significance is lacking…there is no reason to worry about statistical significance" (p. 252). Kaye, D. H., Freedman, D. A. (2011). Reference guide on statistics. In National Research Council, *Reference manual on scientific evidence* (3rd ed., pp. 211–302). Federal Judicial Center.

by race/ethnicity, by race/ethnicity interacted with male or female gender,[3] and by race/ethnicity

interacted with station.

An analysis of stop outcomes follows, which begins by analyzing the likelihood of a

contraband discovery, both for all stops and limited to the subset of stops where a search

occurs. We then examine disparities in the likelihood of arrest, citation, and vehicle

impoundment or storage.

Finally, we analyze outcomes of stops deputy by deputy, providing the results from an

analysis that creates internal benchmark comparisons for each deputy and assesses whether the

outcomes observed for a specific deputy are statistical outliers relative to comparable stops

made by other deputies with similar shift and unit assignments.

The findings from this analysis are as follows.

- Blacks are overrepresented among those stopped by deputies: the percent of
  stops that are of Black people are double the percent of the resident population
  of the AV that is Black. White people are underrepresented among stops relative
  to their percentage of the resident population, while Hispanic people are slightly
  underrepresented. Asians, Native Americans, and those who fall in the "other"
  category are also underrepresented relative to their share in the population.
  These additional groups, however, constitute a very small share of stops.
  Collectively, White, Black, and Hispanic members of the public accounted for
  98.2% of those stopped by deputies during the period studied. It is important to
  note that the comparison of the racial/ethnic composition of stops to the
  racial/ethnic composition of the residential population does not account for
  many factors other than the race/ethnicity of individuals stopped that could have
  an impact on the difference in the level of police stops. For example, this
  comparison does not measure traffic accidents, speeding, calls for service, and
  the level of other civilian activity that may generate more stops in areas where
  Blacks are more likely to be traveling in motor vehicles, on bicycles, or as
  pedestrians. As a result, we focus more attention on examining racial/ethnic
  disparities in what happens after a stop occurs.

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[3] LASD does not collect data on any gender other than male or female. The deputy usually makes the determination,
but in some cases, they may ask the stopped person.

- Blacks are the most likely to be stopped for registration/equipment violations. Roughly 54.6% of stops of Blacks fall in this category, compared with 40.8% of stops of Hispanics and 38.7% of stops of Whites.

- Blacks are the most likely to be searched. This is true for both person searches and vehicle searches. For example, while 26.3% of stops of Whites result in a search, the comparable figure for Blacks is 30.3%. This difference is driven entirely by a higher propensity for deputies to search Black men. Search rates for stops of White and Black males equal 32.1% and 38.3%, respectively. Among men, Black men are more likely to be searched due to "odor of contraband," as a condition of parole/probation, and for a weapons patdown. White men are slightly more likely to be searched incident to arrest, due to a consent search, and due to evidence of criminal activity.

- Blacks as well as Hispanics are more likely to experience backseat detentions relative to White members of the public. These disparities are driven entirely by higher likelihoods that Black and Hispanic males will undergo a backseat detention compared to White males. Black and Hispanic women are slightly less likely to experience a backseat detention relative to White women.

- The disparity in backseat detention rates is driven primarily by the fact that Blacks are more likely to be stopped by deputies who use backseat detention more frequently. That being said, deputies who often use backseat detentions tend to do so for all members of the public regardless of race. In other words, deputies who use backseat detentions frequently for stops of Blacks also do so for stops of Whites.

- Blacks are much more likely to be asked about their probation/parole status. Roughly 55% of stopped Blacks are asked if they are on probation or parole compared to 44% of Whites and 49% of Hispanics. These disparities are particularly large for males, with a Black–White disparity in this question being asked of slightly over 14 percentage points. Among those asked, Blacks and Hispanics are slightly less likely to be on parole or probation. We find that 47% of Blacks stopped by deputies are asked about their probation/parole status and answer that they are not on probation or parole. The comparable figures for Whites and Hispanics are 37% and 42%, respectively. More than half of Black men stopped are asked about their status and answer that they are not on probation or parole.

- These disparities in the likelihood of being asked about one's probation/parole status are driven almost entirely by the fact that Black people are disproportionately stopped by deputies who ask this question at a high rate. An analysis of the data at the deputy level reveals a cluster of deputies who never ask, a cluster of deputies who always ask, and some that fall between these two

extremes. Deputies who frequently or always ask are responsible for a disproportionate number of stops of Black people. Deputies who frequently ask about probation/parole status tend to do so for all stops regardless of race/ethnicity.

- Deputies seize contraband in roughly 7% of stops of Whites, 5% of stops of Blacks, and 6% of stops of Hispanics.

- Among stops involving either a vehicle or person search, deputies seize contraband in 24.4% of stops of White, 15.4% of stops of Black, and 22.3% of stops of Hispanics. The disparities in search hit rates between Whites and Blacks are observed for men and women and are statistically significant. The smaller disparities between Hispanics and Whites are also observed for men and women yet are not statistically significant. These disparities are driven primarily by a much lower likelihood of discovering a controlled substance as well as a relatively low likelihood of discovering illegal property when Black stops result in a search.

- Multivariate analysis that controls for the stated search authority; the stop type, the reporting district where the stop was made; the age, gender, and probation/parole status of the stopped individual; and the specific deputies who make the stop reveals that Black–White disparities in search hit rates largely remain after statistically controlling for these factors.

- Stops of Blacks are more likely to results in an arrest, driven entirely by differences in misdemeanor arrests. Stops involving a search are less likely to result in arrests for Blacks, driven entirely by a lower incidence of felony arrests relative to searches involving White and Hispanic members of the public. Given the high rate of misdemeanor arrests for Blacks, we decided to dig deeper into the data to provide a characterization of the incidents that are coded as involving a misdemeanor arrest. To do so, we drew random samples of 100 person stops involving misdemeanor arrests for Whites, Blacks, and Hispanics (300 observations in total), and we read through the narrative comment fields to identify the exact reason for the arrest. Misdemeanor arrests of Whites are considerably more likely to involve drug possession or drug paraphernalia relative to misdemeanor arrests of Blacks and Hispanics. White misdemeanor arrests are also more likely to involve driving under the influence. Blacks are most likely to experience a misdemeanor arrest for driving without a license or on a suspended license, driving with expired registration, and/or not having evidence of insurance. Roughly equal percentages of White and Black misdemeanor arrests involve an outstanding warrant, while Hispanic misdemeanor arrests are somewhat less likely to involve an outstanding warrant.

- Stops of Blacks are approximately 10 percentage points less likely to result in a citation compared with White stops. This is driven by a 12-percentage point

difference in the likelihood of a hazardous citations and a slightly higher likelihood of a non-hazardous citation for Blacks. These disparities are largest among males.

- Blacks are more likely to have their cars impounded or stored.

The Settlement Agreement also calls for an analysis of how outcomes vary across the geography of the Antelope Valley, with a specific focus on residential demographic composition and local crime rates. To perform this analysis, we merged the geography of LASD reporting districts with demographic data from the US Census Bureau's American Community Survey and publicly available crime data by reporting district. We use these data to conduct several analyses. First, we assess whether there is a relationship between the racial/ethnic composition of reporting districts and localized crime rates. While the result is far from perfect, we do find that on average, crime rates tend to be higher in reporting districts with proportionally larger Black and Hispanic populations. However, we also observe many instances of reporting districts with relatively large minority populations and low crime rates as well as reporting districts with small minority populations and high crime rates.

We also assess whether stop characteristics and outcomes differ across reporting districts after stratifying these districts into groups according to the crime rate and the percent of residents who are Black. While we discerned few discernable patterns across reporting districts stratified by crime rate, we do find that hit rates are low for searches made in predominantly Black reporting districts. However, felony arrest rates tend to be higher in these places.

Finally, while Black and Hispanic stops are more likely to occur in higher crime reporting districts, there is a fair degree of overlap in the geographic distribution of stops of Whites,

Blacks, and Hispanics. This accords with the findings presented throughout the report of a limited role of geography in explaining the disparities that we observe.

The report concludes with an analysis of outcomes at the deputy level. We propose and implement a statistical strategy for comparing each deputy's stop outcomes against an internally generated benchmark based on the deputy's station, unit, and shift. We caution that this analysis should be conducted using an observation period greater than six months to improve precision and increase the number of deputies with sufficient numbers of stops to be included in the analysis.

II.   DESCRIPTION OF THE DATA USED IN THIS REPORT

The analysis in this report is based primarily on administrative records documenting stops made between January 1, 2019, and June 30, 2019. We restricted the data to those incidents involving traffic stops, pedestrian stops, and bicycle stops.[4] In the next section, we describe how we shaped our analytical files from the raw data. The primary objective was to generate a dataset that had one record per stop and per person involved in the stop. In addition to the administrative dataset, we also employed data from various years of the American Community Survey produced by the US Census Bureau. We discuss each dataset in turn.

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[4] We also appended records with clearance code 843, used to log additional detained persons. Using these records, we use the JULIANTAG identifier listed in the reference code to find additional persons involved in traffic, bicycle, pedestrian codes.

III.   CREATING AN ANALYTICAL DATASET OF STOPS AT THE PERSON LEVEL

The administrative stop data contain many records that are near duplicates due largely to three factors: in stops that involved multiple officers, each officer almost always submitted a separate record for each involved member of the public; when multiple contraband items were discovered, multiple records were often created per citizen; and in a small number of cases, multiple records per encounter were associated with multiple radio codes pertaining to the incident. We reduced the dataset to one record per stop and per person stopped. In other words, a stop involving one individual will have one record, while a stop involving three individuals will have three records. To reduce the dataset to one observation per citizen stopped, we applied the following steps.

- **Step 1:** Drop all duplicates where the only difference between observations occurs for the value of the variable indicating the radio code. This step dropped a relatively small number of records.

- **Step 2:** Drop all duplicate records where the only difference is the identity of the deputy filing the record. For example, if two deputies stop one citizen, the records that each officer files on the stop will be identical except for the officer's identity. This step dropped several thousand observations given that many stops involved multiple deputies.

- **Step 3:** Drop all duplicates associated with multiple contraband discoveries. After eliminating duplicates using the filters in Steps 1 and 2 above, multiple observations per stop and citizen stopped still remained. This is due to citizen stops where multiple contraband items are discovered, with separate records created for each item seized. To flatten the file, we first sorted the data by the stop identifier (the JULIANTAG) and the citizen contact name. We then created an indicator variable for the type of contraband seized (e.g., equal to one if drugs are discovered and zero if not). We then summed these variables for all observations with the same stop identifier and citizen contact name. We then used these sums to create new indicator variables flagging each contraband seizure category.

After we applied these steps, the dataset has 22,545 separate observations involving unique contact pairs of stops and citizens. Of these observations, 10,362 are attributable to the Lancaster station and 12,183 are attributable to the Palmdale station. Roughly 86% of the citizens stopped are observed only once in the data, while roughly 9.5% are stopped twice. There are a few individuals stopped many times over the six-month period, with one individual appearing in the data in 17 separate stops. Note that we append to each stop the deputy identifier of each deputy involved in the stop. We use these identification numbers to control for the specific deputies involved in some of the multivariate analyses presented below.

In addition to using the data to describe stops by the race and ethnicity of the citizens involved, we also used the data to code several alternative stop outcomes. Specifically, we created variables indicating that contraband was seized as well as separate variables for the type of contraband seized. We also created variables indicating whether the stop resulted in any arrest, a felony arrest, or a misdemeanor arrest. The arrest variable is coded in a manner that makes it difficult to identify who is arrested in stops involving multiple members of the public; this is not an issue for stops involving a single member of the public (approximately 83% of stops).

We also created indicator variables for whether the stop resulted in either a hazardous or non-hazardous citation. Again, in stops involving multiple members of the public, it is not clear which person receives the citation.

In addition to the administrative data, we used census track–level data from the American Community Surveys of 2014 through 2018 to measure the demographic composition of sheriff reporting districts in the AV. To do so, we first overlapped digital maps for reporting

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districts and census tracts to identify all census tracts that are either entirely or partially covered by a given reporting district. We then proportionally assigned the population of each census tract to reporting districts based on the area within a tract that lies within the district. We merged these data to crime totals by reporting district for 2018 published by the LASD.

In what follows, we first present a descriptive analysis of stops by race and ethnicity. The data include the following codes for racial/ethnic groups: White (4,930 observations), Black (7,303 observations), Hispanic (9,202 observations), Asian (122 observations), Native American (two observations), other (285 observations), and Pacific Islander (one observation). We group Asian observations and the one Pacific Islander observation into one category (as is the practice in summarizing US census data). Given the small number of observations in the Asian and Native American categories and the likely heterogeneity of the 285 observations in the category labeled "other," much of the following analysis focuses on intergroup differences between individuals labeled White, Black, or Hispanic.

The descriptive analysis focuses on the distribution of stops across race and ethnicity, what occurs during the stop (whether the individual is searched, whether a backseat detention occurs), and the reason for the contact and authority used to justify searches when they occur. Following this analysis, we present an analysis of outcomes. Specifically, we present comparisons of the rate at which contraband is discovered by group, arrest rates, and citation rates. We also present an analysis of the likelihood that a car is impounded or stored as a result of the stop. The outcome analysis involves both raw comparisons of rates and multivariate regression analysis aimed at assessing whether observable characteristics of the stops explain the racial/ethnic disparities observed. We also performed an analysis on subgroups of the data that

are common in the racial profiling literature (for example, calculating hit rates for the subsample of stops where a search occurs). We discuss the methodological details of this analysis along with the presentation of the results.

Finally, we provide an analysis of how stop outcomes vary across reporting district and the relationship between outcomes and the demographic and crime rates of reporting districts.

IV.   DESCRIPTIVE ANALYSIS OF THE STOP-PERSON DATA

A.   Racial Composition of Stops Relative to the Resident Population

We begin by documenting the racial/ethnic composition of individuals stopped by deputies in the AV and how this composition compares to the resident population of the valley. Figure 1 shows the distribution of stops by race and ethnicity. Hispanic members of the public account for the largest share of stops (43.9%), followed by Blacks (32.4%), and Whites (21.9%). Together these three groups account for 98.2% of persons stopped. Stops where the citizen is Asian, Native American, or in the "other" category account for a very small share of stops.

The blue bars in Figure 1 present the racial/ethnic composition of the resident population of the AV. We use data from the American Community Survey and restrict the data to respondents residing in either Lancaster or Palmdale.[5] Hispanics are slightly underrepresented among those stopped by the police, accounting for roughly 44% of stops but 48% of the resident population. Whites are also underrepresented, accounting for 22% of stops

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[5] Note, race/ethnicity from the American Community Survey data is based on individual self-description while the race/ethnic categories used on stop forms reflect the deputy's assessment of the individuals' race/ethnicity. The details behind the tabulation of the American Community Survey data are presented in the noted to Table 1.

and 29% of the resident population. Blacks are overrepresented among stops, accounting for

32.4% percent of stops, which is nearly double the resident population of 16.7%.

Figure 1

Racial/Ethnic Distribution of Stops Versus
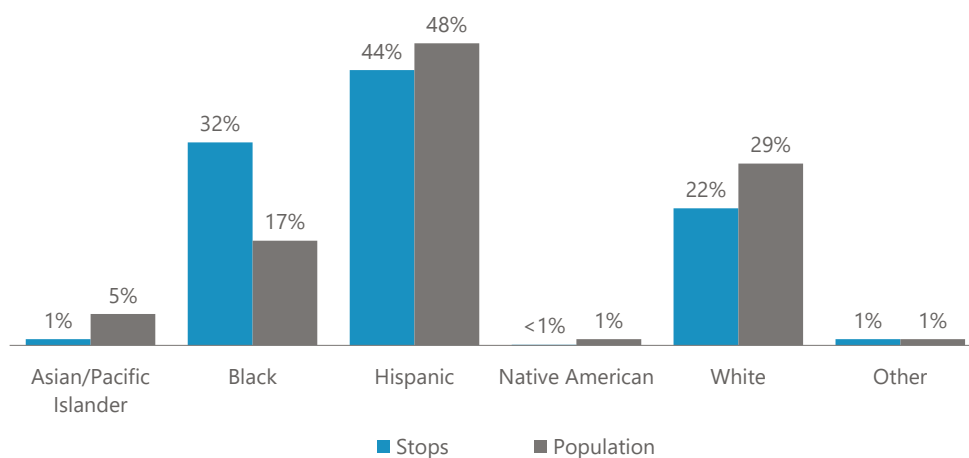Racial/Ethnic Distribution of the Resident Population

Table 1 presents separate tabulations of the distribution of stops and residents across

racial/ethnic groups for Lancaster and Palmdale. For each city, the first column presents the

race/ethnicity distribution of stops, the second column presents the race/ethnicity distribution of

the resident population, while the final column presents the ratio of the percent of stops

accounted for by a specific group to the percent of the resident population accounted for by the

group. For this ratio, values greater than 1 indicate that the group is overrepresented among

police stops while values less than 1 indicate that the group is underrepresented.

Table 1						
Racial/Ethnic Distribution of Stops Versus Distribution of Resident Population by City						
Race/ Ethnicity	**Lancaster**			**Palmdale**		
	% of Stops	**% of Population**	**Stops/ Population**	**% of Stops**	**% of Population**	**Stops/ Population**
White	22.5%	34.6%	0.7%	21.4%	23.6%	0.9%
Black	40.6%	21.3%	1.9%	25.4%	12.4%	2.1%
Hispanic	35.3%	38.1%	0.9%	51.3%	57.7%	0.9%
Asian	0.4%	4.8%	0.1%	0.7%	5.0%	0.1%
Native American	0.0%	0.7%	0.0%	<1%	0.7%	<1%
Other	1.3%	0.5%	2.5%	1.2%	0.5%	2.4%
Total	**100.0%**	**100.0%**	**—**	**100.0%**	**100.0%**	**—**

The patterns are qualitatively similar across the two cities, although with a few subtle differences. White residents are underrepresented among those stopped in both cities, though this underrepresentation is greater in Lancaster relative to Palmdale. In both cities, the percent of stops that are of Blacks is roughly double the percent of Black residents in each city, with the overrepresentation a bit greater in Palmdale relative to Lancaster. Moreover, in both cities, Hispanics are slightly underrepresented among those stopped.

It is important to note that the comparison of the racial/ethnic composition of stops to the composition of the residential population does not account for factors other than the race/ethnicity of individuals stopped that could impact difference in the level of police stops. For example, this comparison does not measure traffic accidents, speeding, calls for service, or the level of other activity that may generate more stops in areas where Blacks are more likely to be traveling in motor vehicles, on bicycles, or as pedestrians. As a result, we focus more attention on examining racial/ethnic disparities in what happens after a stop occurs.

B. **Differences in the Stated Reason for Contact and the Likelihood of Being Searched**

Table 2 presents the distribution of stops for Whites, Blacks, and Hispanics by the reason for the stop. Panel A presents results for men and women combined, Panel B presents results for males by race/ethnicity, while Panel C presents results for females. The sum of the figures in each column is approximately 100%.[6] For all groups, vehicle code violations account for most stops (86.3% for stops of Whites, 87.8% for stops of Blacks, and 88.8% for stops of Hispanics). While there are small differences between groups (for example, stops of Whites are slightly more likely to be classified as consensual relative to stops of Blacks), the distributions by the reason for the stop are quite similar. There are no large interracial/ethnic differences within or between gender categories.

Table 2			
Distribution of Reasons for Stops by Race/Ethnicity and Gender			
Reported Reason	**White**	**Black**	**Hispanic**
Panel A: All Stops			
Render Assistance	0.1%	0.0%	0.1%
Business and Professional Code	0.4%	0.5%	0.2%
Consensual Encounter	2.9%	1.8%	2.2%
Federal Code	0.0%	0.0%	0.0%
Health and Safety Code	0.3%	0.6%	0.5%
Be on Look-Out/All Points Bulletin	0.1%	0.1%	0.0%
City-County Ordinance	2.4%	1.1%	1.1%
Penal Code	3.0%	3.0%	1.9%
Reasonable Suspicion	1.5%	1.4%	1.8%
Call for Service	0.8%	1.0%	0.7%
Vehicle Code	86.3%	87.8%	88.8%
Welfare and Institutions Check	0.0%	0.1%	0.0%

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[6] Figures may not total 100% exactly due to rounding.

Table 2			
Distribution of Reasons for Stops by Race/Ethnicity and Gender			
Reported Reason	**White**	**Black**	**Hispanic**
Want/Warrant on License Plate	2.2%	2.8%	2.7%
Panel B: Men			
Render Assistance	0.1%	0.0%	0.1%
Business and Professional Code	0.4%	0.5%	0.2%
Consensual Encounter	3.3%	2.2%	2.6%
Federal Code	0.0%	0.0%	0.0%
Health and Safety Code	0.4%	0.8%	0.6%
Be on Look-Out/All Points Bulletin	0.1%	0.2%	0.1%
City-County Ordinance	3.0%	1.4%	1.3%
Penal Code	3.3%	3.6%	2.3%
Reasonable Suspicion	1.8%	1.7%	2.1%
Call for Service	1.0%	1.0%	0.8%
Vehicle Code	84.2%	86.0%	87.0%
Welfare and Institutions Check	0.0%	0.0%	0.0%
Want/Warrant on License Plate	2.3%	2.6%	2.9%
Panel C: Women			
Render Assistance	0.1%	0.0%	0.2%
Business and Professional Code	0.4%	0.4%	0.1%
Consensual Encounter	2.0%	1.0%	1.3%
Federal Code	0.0%	0.0%	0.0%
Health and Safety Code	0.2%	0.1%	0.2%
Be on Look-Out/All Points Bulletin	0.1%	0.0%	0.0%
City-County Ordinance	1.3%	0.7%	0.5%
Penal Code	2.5%	1.8%	1.1%
Reasonable Suspicion	0.9%	0.7%	1.0%
Call for Service	0.5%	0.9%	0.5%
Vehicle Code	90.2%	91.2%	92.8%
Welfare and Institutions Check	0.1%	0.1%	0.0%
Want/Warrant on License Plate	1.9%	3.1%	2.3%

Note: Individual columns sum to 100%.

The stop data includes greater detail on the cause of the stop, including broad information on the reason (local ordinance violation, penal code, vehicle code, etc.) as well as the specific code section violation that prompted the stop (e.g., specific offenses as defined by specific health and safety, penal, and vehicle codes). We merged literal definitions to each reported code, and for the stated vehicle code violations, we grouped the cited reason into four broad categories: bicycle violation, moving/hazardous violations, registration/equipment violations, and a catchall "other" category. Table 3 presents the distribution of vehicle stops across these broad reason categories within racial/ethnic groups. There are some notable and large differences in the reasons for a stop, primarily between Blacks and everyone else. While approximately 55% of stops of Whites and 54% of stops of Hispanics are for a moving/hazardous violation, the comparable figure for Blacks is 39%. In contrast, stops of Blacks are considerably more likely to be for registration or equipment violation (54.6% for Blacks) relative to Whites and Hispanics (38.7% and 40.8%, respectively). Stops of Black men are the most likely to be for a registration/equipment violation (57.6%), while stops of Hispanic women are the least likely (29.8%). Men in general are more likely to be stopped for this reason relative to women.

	Table 3		
Distribution of Reasons for Contact for a Vehicle Code Violation by Race/Ethnicity and Gender			
Reported Code	**White**	**Black**	**Hispanic**
Panel A: All Stops			
Bicycle	2.4%	2.1%	1.9%
Moving/Hazardous	54.7%	39.0%	53.5%
Registration/Equipment	38.7%	54.6%	40.8%
Other	4.2%	4.3%	3.8%
Panel B: Men			
Bicycle	3.4%	3.1%	2.7%
Moving/Hazardous	50.5%	34.6%	46.9%
Registration/Equipment	41.1%	57.6%	46.1%
Other	5.0%	4.8%	4.4%
Panel C: Women			
Bicycle	0.7%	0.3%	0.4%
Moving/Hazardous	62.0%	47.1%	67.1%
Registration/Equipment	34.7%	49.2%	29.8%
Other	2.7%	3.4%	2.8%

Note: Individual columns sum to 100%.

Table 4 presents the percent of person-stop combinations where a search occurs by race/ethnicity and by whether the stopped person is recorded as a man or woman. Here, we classify searches using three separate categorizations: whether any search occurs (either of a person or a vehicle), whether the stopped person is searched, and whether the vehicle involved in the stop is searched. Beginning with the tabulations for men and women combined (the figures in Panel A), Blacks are four percentage points more likely to experience any search relative to Whites, with a Black search rate of 30.3% and a White search rate of 26.3%. This differential amounts to 15% of the search rate for Whites. Focusing on a person search, we see a smaller racial disparity of 2.8 percentage points, while for vehicle searches we see a slightly higher disparity of 4.1 percentage points. Search rates for Hispanics are comparable to those for

Whites, with a slightly lower rate for any search of Hispanics (26% for Hispanics relative to 26.3% of Whites), a slightly lower rate for person searches, and a slightly higher search rate for vehicles for Hispanics.

Race/Ethnicity	Any Search	Person Search	Vehicle Search
Table 4			
Percentage of Stops Involving a Search by Race/Ethnicity and Gender			
Panel A: All Stops			
White	26.3%	23.8%	14.2%
Black	30.3%	26.6%	18.3%
Hispanic	26.0%	22.7%	15.5%
Asian	2.5%	0.8%	1.6%
Native American	0.0%	0.0%	0.0%
Other	9.1%	8.8%	5.3%
Panel B: Men			
White	32.1%	30.3%	15.9%
Black	38.3%	35.4%	22.2%
Hispanic	31.5%	28.9%	17.7%
Asian	4.2%	1.4%	2.8%
Native American	0.0%	0.0%	0.0%
Other	12.5%	11.9%	6.8%
Panel C: Women			
White	15.6%	11.8%	11.0%
Black	14.7%	9.3%	10.8%
Hispanic	13.7%	9.0%	10.5%
Asian	0.0%	0.0%	0.0%
Native American	—	—	—
Other	3.7%	3.7%	2.8%

Disaggregating the data for men and women reveals several patterns. First, men are uniformly more likely to be searched than women. This pattern is observed within all racial/ethnic groups. Second, the higher search rate for Blacks that we observe in Panel A is

driven entirely by higher search rates for Black males. For the "any search" outcomes, Black males are searched 38.3% of the time, a rate that exceeds that for White males by 6.2 percentage points (amounting to 19% of the base rate for White males). We observe sizable disparities for Blacks and Whites among males for both person searches (5.1 percentage points) and vehicle searches (6.3 percentage points). Black women are slightly less likely to be searched compared to White women using all three search definitions. In addition, Hispanic men are slightly less likely to be searched, while Hispanic women are slightly more likely to be searched when compared to Whites of the same gender.

Given that we are observing a snapshot of stops made over a short period of time, we must assess whether the differences we observe represent actual differences in underlying search rates or differences in search rates that may reflect random variation associated with the stops. Assuming that there is a true underlying rate at which stops of individuals of a specific race or ethnicity are searched, the tabulated rate from a snapshot of data essentially provides an estimate of this underlying rate, with any given estimate possibly being too large or too small. The degree to which an estimate differs from the true underlying value reflects the uncertainty associated with estimation, which is usually categorized by calculating a margin of error for any estimate.[7] When we compare two estimates (for example, the search rates for White and Black males) and calculate a difference, the difference itself also has a margin of error that must be estimated in order to assess whether the difference reflects a statistically significant differential

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[7] To be more precise, we use 95% confidence intervals for our estimates of differentials below to assess whether the differences we observe are statistically significant.

as opposed to a difference that may simply reflect the uncertainty associated with the underlying methods used to calculate the differential.

The results from such an analysis of the disparities in search rate are presented in Figure 2. The figure uses the rates presented in Table 4 to display graphically the difference in search rates between Blacks and Whites and between Hispanics and Whites. The figure also displays the margin of error for these differences with the aim of assessing whether these differentials are statistically significant. Since this report uses similar figures several times in what is to follow, here we present a detailed description of the "Any Search: All" graph in the upper left-hand corner of Figure 2.

Figure 2

Percentage Point Difference in Stops With Searches by Race/Ethnicity and Gender

Percentage Point Difference Relative to Stops of Whites

The "Any Search: All" graph shows two differentials: the Black–White differential and the Hispanic–White differential in the search rates for the "any search" outcome. The magnitude of the differential relative to Whites is gauged by the scale along the horizontal axis of the figure. The solid circles mark the actual differential (four percentage points for the Black–White differential and -0.3 percentage points for the Hispanic–White differential). The horizontal line through each circle shows the margin of error within which we are 95% confident that the true differential lies. For reference, a vertical line on the scale along the horizontal axis indicates a zero differential. A statistically significant differential is one where the value of zero (indicated by

the vertical line drawn at zero) lies outside of the margin of error for the difference estimate. When this is the case, we can say that the differential we observe is statistically distinguishable from zero (with the commonly used shorthand language that the difference is simply statistically significant). Since the confidence interval for the Black–White differential in search rates of four percentage points does not include the value of zero, this difference is statistically significant. In contrast, we see that the confidence interval for the Hispanic–White differential of -0.3 spans a range that include the zero-differential value. Here, we would conclude that the differential is not statistically distinguishable from zero, since zero lies within the estimate's margin of error.[8]

The three graphs in the top row of Figure 2 show differentials relative to Whites for men and women combined, the second row presents differentials for men, while the third row presents differentials for women. The figures clearly indicate that the positive Black-White search disparities are statistically significant when genders are combined and when we look at males in isolation. Among women, the small difference for the Black-White difference in the "any search" and vehicle search outcomes are not statistically significant, while Black women are slightly less likely to experience a person search (with the difference statistically significant). Hispanic-White differentials are generally smaller and not consistently positive or negative.

Figure 3 presents a comparable analysis of separate differentials for the Lancaster and Palmdale stations. Here we present results only for men and women combined. Beginning with the "Any Search" outcome, we see a sizable and statistically significant Black–White disparity in search rates of roughly seven percentage points for Lancaster and a small (one percentage

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[8] In calculating the 95% confidence interval for each disparity, we allow for the clustering of model standard errors by stop ID. This generally leads to larger standard errors and wider confidence interval given that roughly 14% of stops involve more than one member of the public.

point) and statistically insignificant differential for Palmdale. We see a similar pattern for the

Black–White disparity in person searches. While the Black–White differentials in vehicle searches

are statistically significant for both stations, the differential in Palmdale is roughly half the size of

that for Lancaster.

Figure 3

Percentage Point Difference in Stops With Searches Relative to
Stops of White Citizens by Station

Percentage Point Difference Relative to Stops of Whites
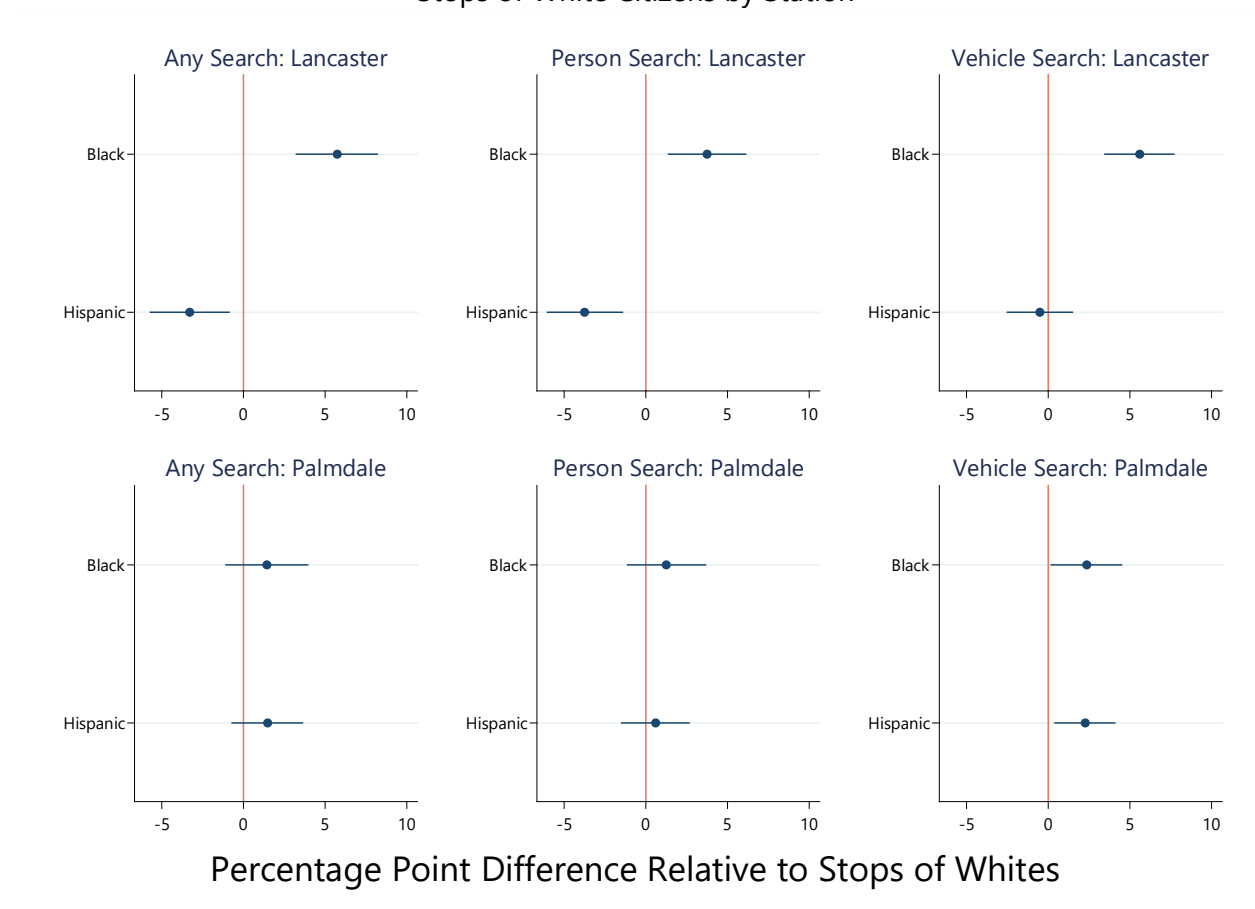
In Lancaster, stops of Hispanics have lower search rates for the "Any Search" and "Person

Search" outcomes. These differentials are statistically significant. The Lancaster Hispanic–White

differential in vehicle searches is quite small and statistically insignificant. For Palmdale, we

observed small positive Hispanic–White differentials for all searches and for person searches. These differentials are not statistically distinguishable from zero. Finally, Hispanics are slightly more likely to experience a vehicle search in Palmdale relative to Whites (by roughly two percentage points). This differential is statistically significant.

To explore the racial disparities in search rates further, we estimated multivariate models that permit statistically adjusting the racial/ethnic disparities in search rates for average differences in the characteristics of stops involving Black, Hispanic, and White members of the public. Specifically, we tabulated the overall disparities in search rates not adjusting for any characteristics (equal to the differences across racial/ethnic group displayed in Table 4), the race and ethnic disparities that remain after statistically controlling for the type of stop (using the categories listed in Table 2), the disparities that remain after further controlling for differences in the geographic distribution across reporting districts of stops across the groups, and the disparities that remain after adjusting for which deputies are making the stops.[9] Figure 4 graphically presents the results from this analysis. For the Black–White and Hispanic–White differentials, the figure displays the unadjusted difference in search rates, the difference after accounting for differences in stop reason, the difference after adjusting for differences in where people are stopped, and the difference that remains after adjusting for which deputies are making the stops. The figure reveals that differences in where Black people are stopped relative

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[9] To be precise, we estimated linear probability models where the dependent variable was whether there was a search, and the key explanatory variables were race/ethnicity dummy variables with non-Hispanic White the omitted category. To control for stop type, we created a complete set of dummy variables using the categories in Table 2. To control for difference in geography, we added a complete set of dummy variables for reporting district. Finally, to adjust for differences in which deputies made the stops, we added a complete set of dummy variables for the deputies involved. Note that individual stops may involve multiple deputies. The confidence intervals for the race disparities were tabulated based on model standard errors that allowed for clustering of records by the JULIANTAG number.

to Whites and most importantly, differences in which deputies tend to stop Blacks as opposed

to Whites explains the entire Black–White disparity in search rates. In other words, Black

members of the public tend to be stopped in areas where search rates are high and by deputies

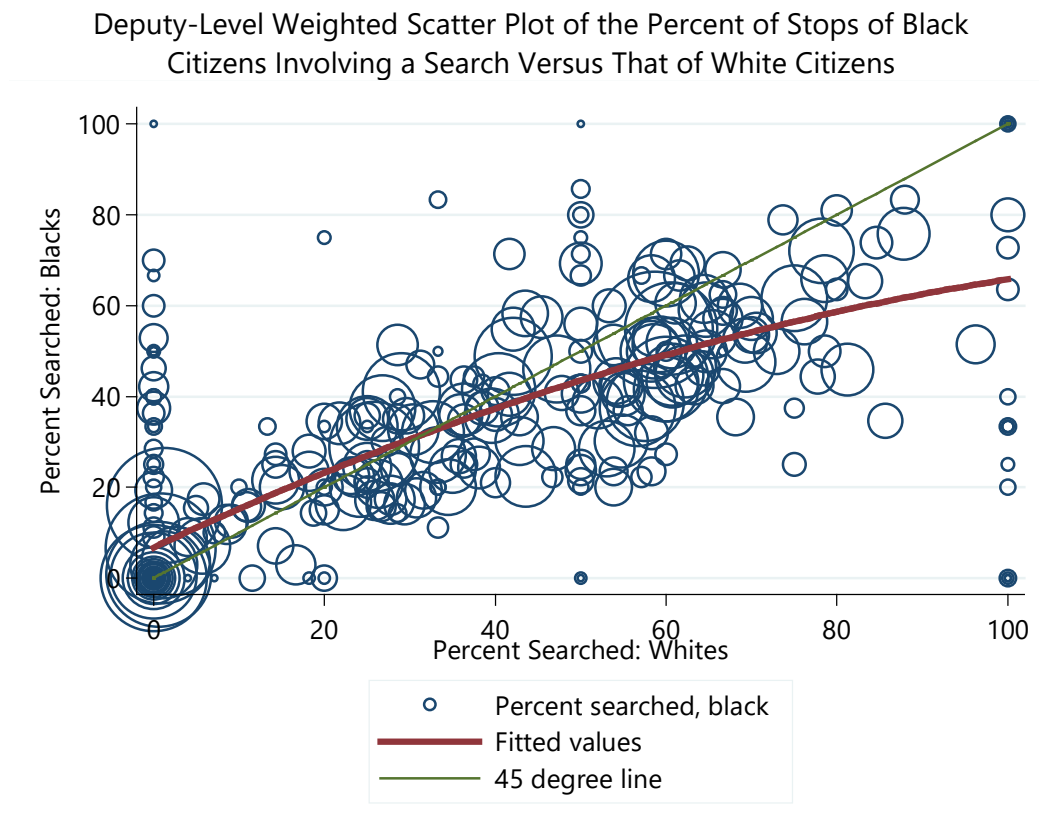who are more likely to conduct searches.

Figure 4

Racial/Ethnic Disparities in the Percent of Stops With a Search
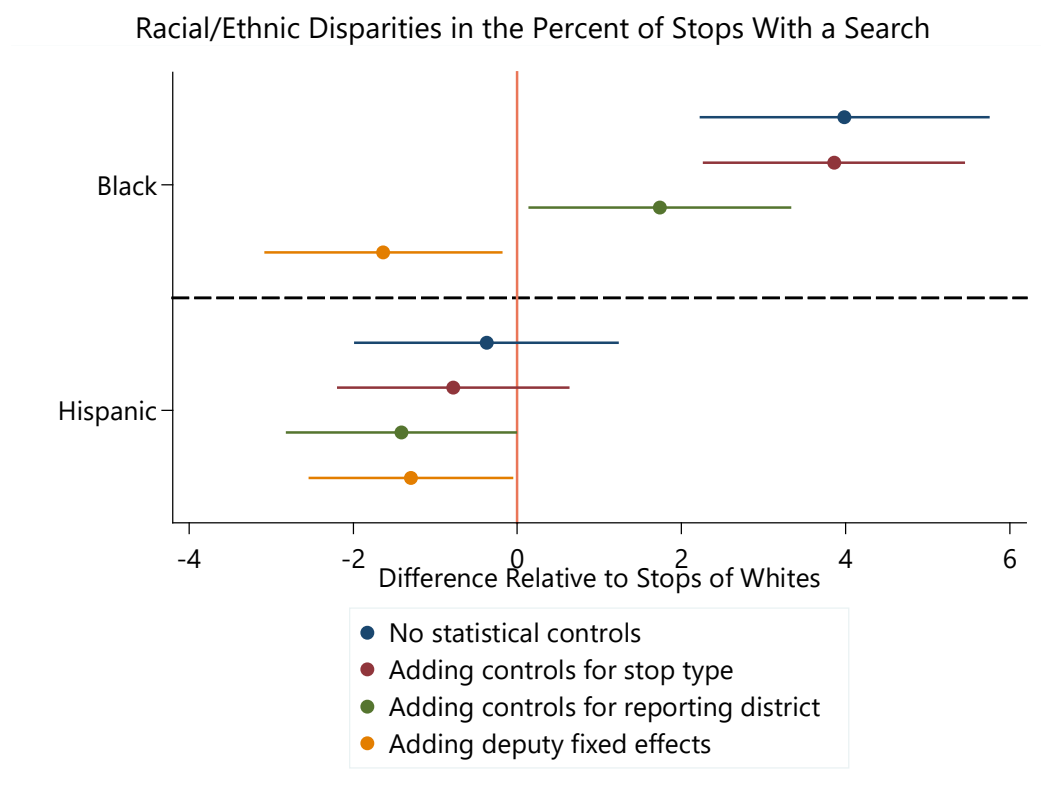
The findings that Blacks are more likely to be stopped by deputies who search at a high

rate does not imply that particular deputies are more likely to search Blacks than Whites. In fact,

the data suggest the contrary. In Figure 4, we see that after controlling for deputies involved, the

Black–White disparity becomes slightly negative and statistically significant. This indicates that

holding constant the deputy involved, stops of Black people are less likely to result in a search.

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Another way to see this pattern is to analyze data at the deputy level, As we do in Figure 5.

Specifically, for each deputy we tabulated the percent of stops of Blacks where the deputy

conducted a search as well as the percent of stops of Whites where the deputy conducted a

search. The figure plots the deputy-specific search rate for Blacks against the comparable rate

for Whites. Each point is marked by a circle with bigger circles indicating deputies who stop

more Black people.

Figure 5

Deputy-Level Weighted Scatter Plot of the Percent of Stops of Black
Citizens Involving a Search Versus That of White Citizens

Note: Data points and quadratic regression line weighted by the number of
stops of Black people.

Figure 5 also includes a few reference lines. The green line (drawn at a 45-degree angle) shows the coordinates where the Black and White search rates are equal. If specific deputies tended to search Black people during stops at a higher rate than they do White people, the data points would lie above this line. The curved red line charts out the average empirical relationship between deputy-specific search rates of Black stops and of White stops. While many data points are located around the 45-degree line, we observe lower search rates for Black stops relative to White stops for deputies who search a relatively high percent of their stops.

Table 5 presents one more set of tabulations that characterize racial/ethnic disparities in search rates. For person searches, deputies record the authority justifying the search, and Table 5 presents the distribution of stops across these authority categories for all stops, inclusive of the category "not searched." Panel A presents figures for men and women combined, Panel B presents estimates for men, and Panel C presents estimates for women. Again, here we focus on stops of Whites, Blacks, and Hispanics given the small number of stops in the other racial/ethnic categories. In Panel A we observe that Black people who are stopped are more likely than Whites to be searched overall (i.e., less likely to be not searched), more likely to be searched due to detecting odor of contraband, as a condition of probation/parole, and for a weapons patdown. Blacks and Hispanics are both less likely to be searched relative to Whites incident to arrest, through a consent search, and due to evidence of criminal activity. Among men, the Black–White difference in person search incidence is almost entirely due to a relatively higher likelihood that Black men are searched as a condition of probation/parole, through a weapons patdown, and due to "odor of contraband." Black and Hispanic women are less likely to be searched for nearly all categories listed in Table 5.

Table 5

Distribution of Stated Authority to Search Person for All Stops by Race/Ethnicity and Gender

Stated Authority	White	Black	Hispanic
Panel A: All Stops			
Not Searched	76.2%	73.4%	77.3%
Incident to Arrest	7.1%	6.7%	6.7%
Consent Search	5.7%	4.8%	4.4%
Evidence of Criminal Activity	1.0%	0.6%	0.8%
Inventory	0.3%	0.3%	0.3%
Odor of Contraband	0.6%	2.1%	1.1%
Condition of Probation/Parole	4.5%	6.0%	4.8%
Contraband Visible	0.6%	0.5%	0.4%
Weapons Patdown	3.4%	5.1%	3.5%
Other	0.7%	0.5%	0.8%
Panel B: Men			
Not Searched	69.7%	64.6%	71.1%
Incident to Arrest	8.4%	8.2%	8.1%
Consent Search	7.4%	6.7%	5.7%
Evidence of Criminal Activity	1.0%	0.7%	0.9%
Inventory	0.3%	0.3%	0.4%
Odor of Contraband	0.8%	2.9%	1.4%
Condition of Probation/Parole	6.2%	8.3%	6.3%
Contraband Visible	0.8%	0.6%	0.5%
Weapons Patdown	4.5%	7.1%	4.7%
Other	1.0%	0.6%	1.1%
Panel C: Women			
Not Searched	88.2%	90.7%	91.0%
Incident to Arrest	4.6%	3.8%	3.7%
Consent Search	2.5%	1.1%	1.4%
Evidence of Criminal Activity	0.9%	0.4%	0.4%
Inventory	0.2%	0.3%	0.1%
Odor of Contraband	0.2%	0.7%	0.4%
Condition of Probation/Parole	1.5%	1.4%	1.6%
Contraband Visible	0.4%	0.2%	0.2%
Weapons Patdown	1.3%	1.2%	0.9%
Other	0.2%	0.2%	0.3%

Note: Individual columns sum to 100%.

C.   Backseat Detention

Table 6 presents the percent of stops of persons where a backseat detention occurs. The first column presents the overall percent for each race/ethnicity. The second and third columns present the comparable rates for males and females. Blacks have the highest backseat detention rate at 9.1%, followed by Hispanics at 8.9% and Whites at 8.1%. This overall pattern is driven by larger disparities among men. Generally, men are more likely to experience a backseat detention than are women within racial/ethnic groups. However, the intergroup disparities are somewhat larger for men, with 12.2% of Black men, 11.3% of Hispanic men, and 10.1% of White men being detained in this manner. These figures indicate that Black men are approximately 21% more likely to experience a backseat detention than White men. In addition, Hispanic men are 12% more likely than White men to experience a backseat detention. Among women, Black and Hispanic women are less likely to experience a backseat detention relative to White women.

Table 6			
Percentage of Stops With Backseat Detention by Race/Ethnicity and Gender			
Race/Ethnicity	All	Male	Female
White	8.1%	10.1%	4.3%
Black	9.1%	12.2%	3.0%
Hispanic	8.9%	11.3%	3.6%
Asian	0.0%	0.0%	0.0%
Native American	0.0%	0.0%	—
Other	4.2%	5.1%	2.8%

Figures 6 and 7 analyze the interracial disparities in backseat detention rates. In the first graph in Figure 6 we see that the overall Black–White disparity of one percentage point is what is commonly referred to as marginally statistically significant, as the zero line lies right on the

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edge of the margin of error of the estimate. The overall Hispanic–White differential of 0.7

percentage points is not statistically significant. The larger disparities among males, however, are

generally significant. The zero-effect line clearly lies outside of the confidence interval for the 2

percentage point differential between Blacks and Whites. The 1.2 percentage point differential

between Hispanics and Whites is marginally significant. Among women, we see that Black

women are less likely to be searched relative to White women and that the difference is

statistically significant. The negative Hispanic–White differential among women is not significant.

Figure 6

Percentage Point Difference in Stops With a Backseat Detention Relative to White Citizens
by Race/Ethnicity and Gender

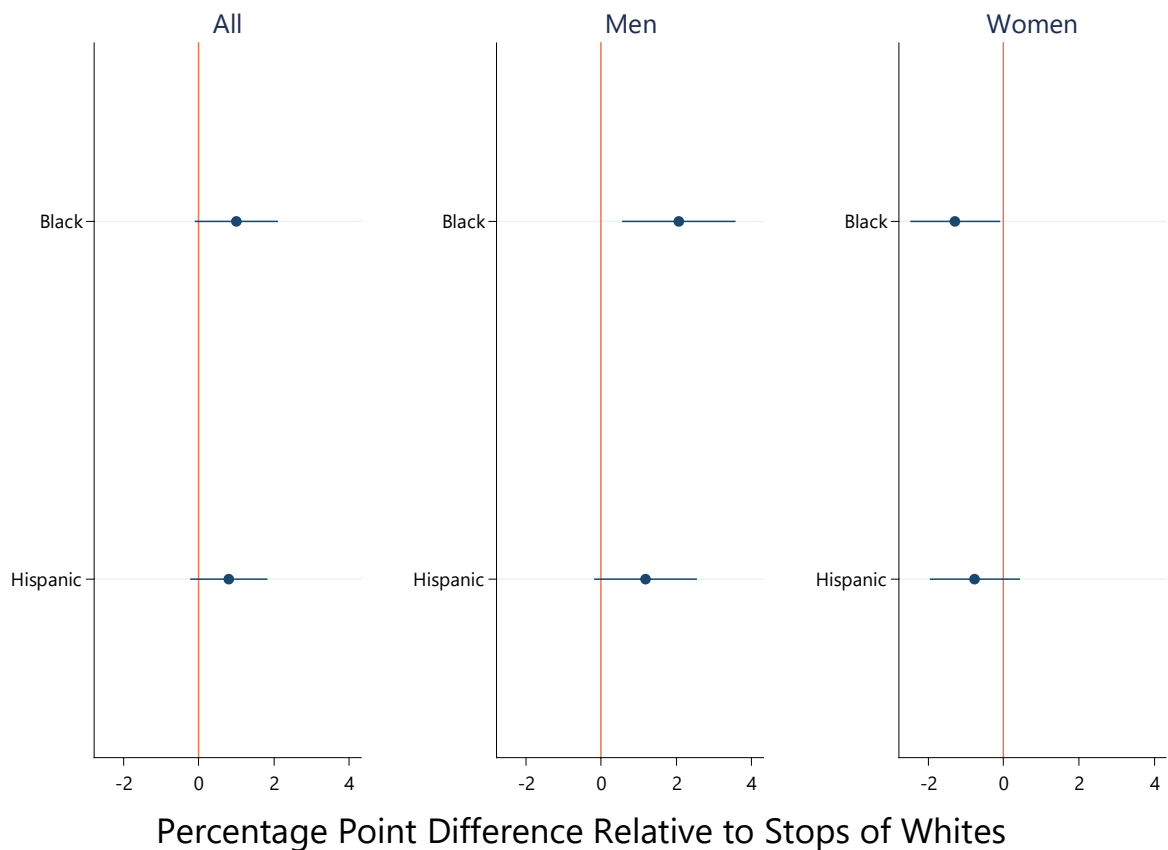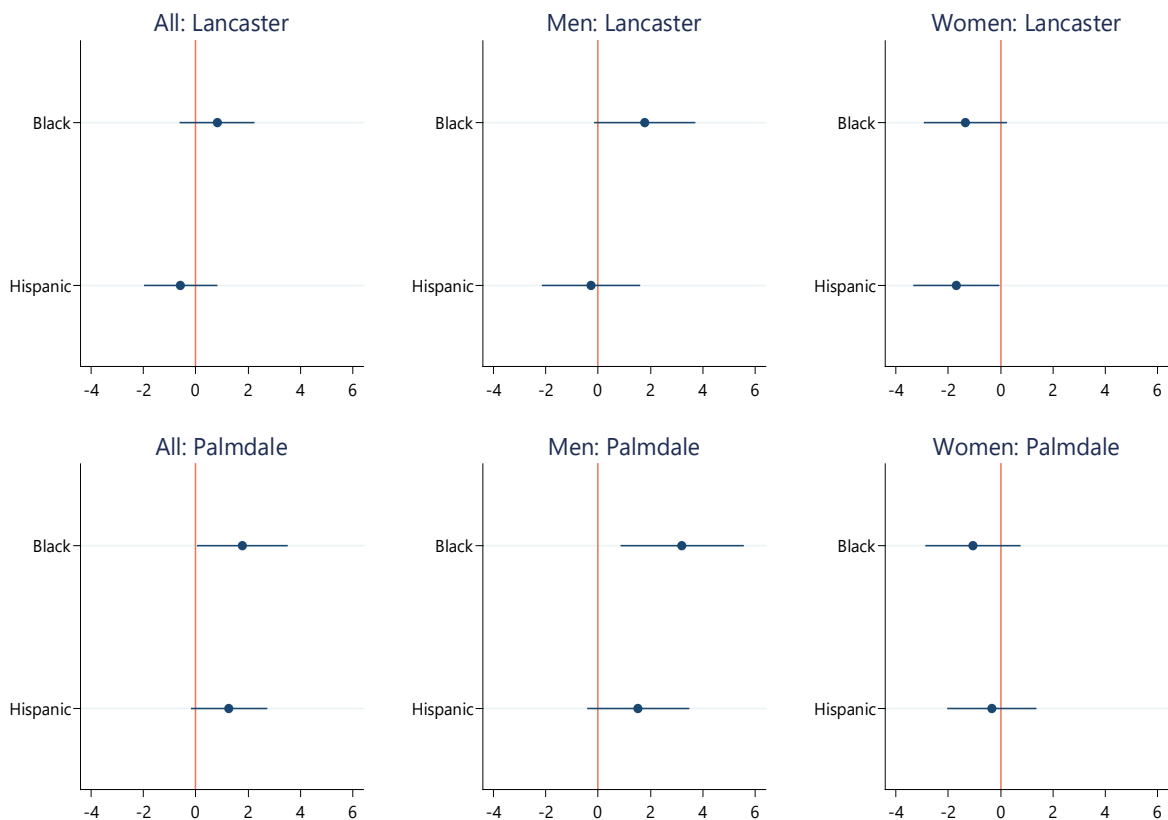Percentage Point Difference Relative to Stops of Whites

Figure 7 displays these differentials along with the margins of error by station and by station interacted with gender. While the patterns by station mirror what we see overall, we see somewhat larger interracial and inter-ethnic disparities in backseat detentions for stops attributable to the Palmdale station relative to the Lancaster station. The differences are most noticeable for the results for men.
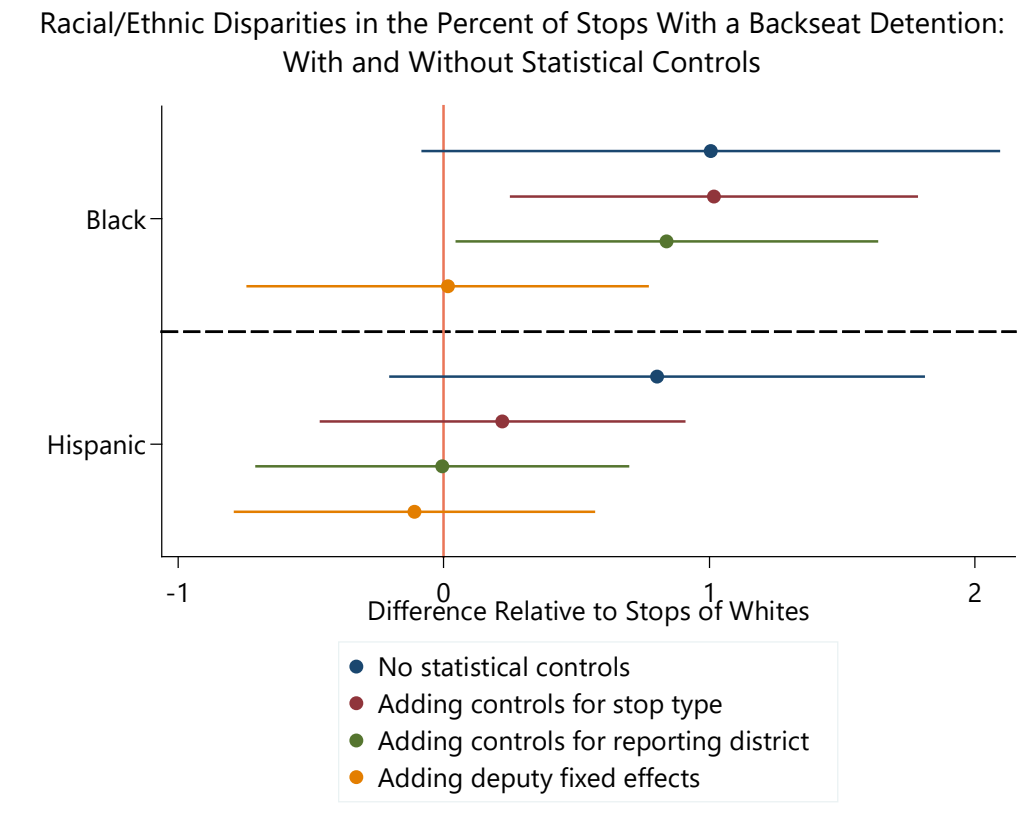
Figure 7

Percentage Point Difference in Stops With a Backseat Detention
Relative to White Citizens by Race/Ethnicity, Gender, and Station

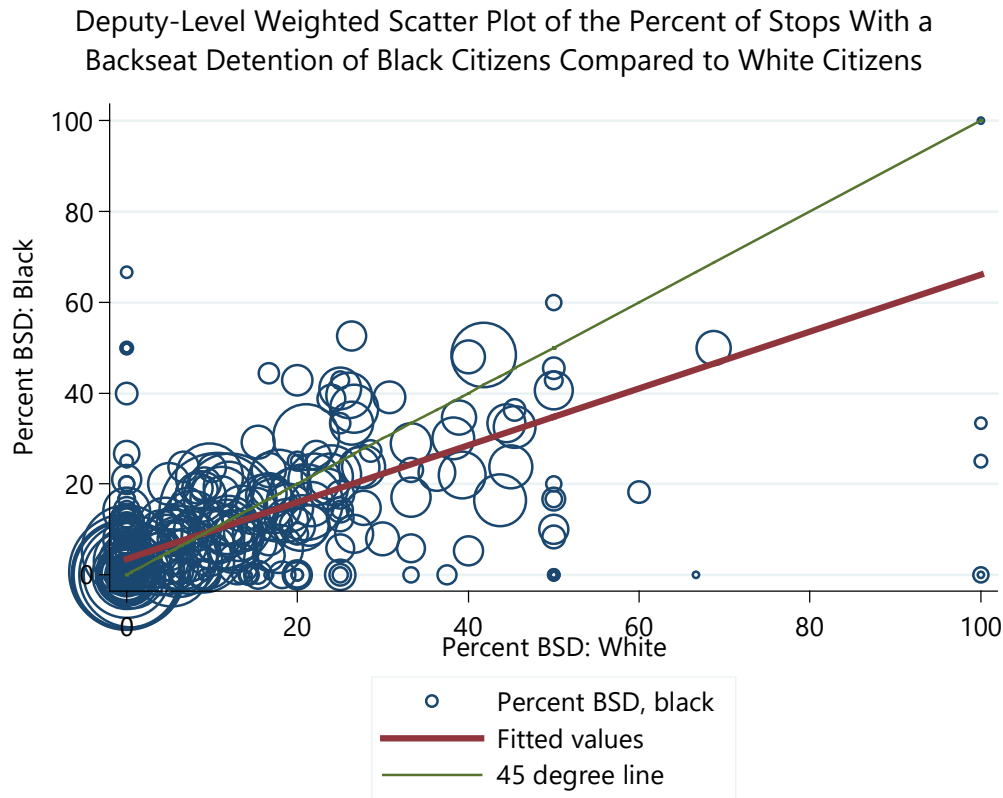Percentage Point Difference Relative to Stops of Whites

Given the overall disparities in the likelihood of a backseat detention, we again use multivariate analysis to dig into the differences in the characteristics of stops of Blacks, Hispanics, and Whites that may explain these disparities. Figure 8 graphically displays the unadjusted Black–White and Hispanic–White disparities in the likelihood of a back-seat detention, the disparity that remains after controlling for stop type, the remaining disparity after controlling for the reporting districts where the stops occur, and the disparity that remains after controlling for the specific deputies making the stop. Controlling for stop type and reporting district does not have an appreciable impact on the estimated Black–White disparity, though the magnitude of the Hispanic–White differential shrinks after adjusting for stop type. By contrast, statistically controlling for the deputy making the stop reduces the Black–White disparity to zero. This suggests that the higher incidence of backseat detentions for Black people is due to Blacks being stopped by deputies who tend to use backseat detention more frequently.

Figure 8

Racial/Ethnic Disparities in the Percent of Stops With a Backseat Detention:
With and Without Statistical Controls

Again, we find little evidence that specific deputies tend to use such detentions more frequently for stops involving Black members of the public relative to stops involving Whites. This is evident in Figure 9, where we plot the deputy-specific backseat detention rate for Black stops against the corresponding rate for White stops. Again, the data points are scaled to reflect the number of Black stops that a specific deputy makes, with larger circles indicating more Black stops. We find little evidence that the mass of data points lie above the 45-degree line. Moreover, when we fit a linear trend line to the data points, the data appear to indicate the likelihood of backseat detention for Black stops tends to be lower relative to White stops for deputies who use this type of detention more frequently.

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Figure 9

Deputy-Level Weighted Scatter Plot of the Percent of Stops With a
Backseat Detention of Black Citizens Compared to White Citizens

Note: Data points and regression line are weighted by the number of stops of Black
people.

D.   Inquiries About Probation or Parole Status

Deputies frequently ask members of the public about their probation and parole status.

Individuals on community corrections can be searched at any time based on their status alone, a

practice that is common throughout the state. Indeed, such individuals are frequently searched

by deputies. For example, among stops where the member of the public indicates that they are

on probation or parole, the percent involving a search of some sort is 90% for Whites, 82% for

Blacks, and 88% for Hispanics.

A downside of frequently asking this question is that many members of the public who are not on probation or parole may feel that they have been treated with disrespect and that they have been assumed to have a criminal history, perhaps due to their race or ethnicity. Moreover, the reactions to this line of questioning and the ultimate impact on community relations may differ across racial and ethnic groups.

To explore these issues, here we document disparities in three outcomes: (1) the percent of stops where the deputy asks the individual about their community corrections status, (2) the percent of individuals who are asked about their status who indicate that they are on probation or parole, and (3) the percent of stops where the individual is both asked whether they are on probation/parole and they answer that they are not. The reasoning behind analyzing these three outcomes is the following. The first outcome simply assesses whether certain members of the public are more likely to be asked this question than others, an issue that is specifically articulated in the Settlement Agreement as an indicator that should be monitored. The second outcome, the likelihood that someone who is asked is actually on probation or parole, provides an indicator of whether one group is being asked this question in a manner that does not reflect intergroup differences in the likelihood of being on probation or parole. To be specific, if members of Group A are asked this question more often than members of Group B, and when asked are less likely to indicate that they are on probation or parole, then one might conclude that deputies are asking this question too often of members of Group A.[10] The third outcome, the percent of stops where a member of the public is asked about their status and indicates that

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[10] Note, this is similar methodologically to the hit-rate analysis for searches that we will discuss in detail in the next section.

they are not on community corrections, provides an indicator of the proportion of stops where the member of the public may walk away from the stop feeling as if law enforcement has assumed the worst of them. Note, even when discovery rates across groups of people on probation/parole are similar, this practice may generate large differences in the percent of stops where this question was asked unnecessarily, with potential consequences for community relations.

Table 7 presents basic patterns for these outcomes. Panel A presents the percent of persons stopped who are asked about their probation/parole status. Panel B provides estimates of the percent who are on probation/parole among those asked. Finally, Panel C shows the percent of persons stops who are asked yet who are not on probation/parole. All three panels present estimates by race/ethnicity for men and women combined and men and women separated out. In Panel A, we see that Blacks are much more likely to be asked about their probation/parole status than are Whites. Slightly over 55% of Blacks who are stopped are asked this question, compared to 49% of Hispanics and 44% of Whites. Black men are the most likely to be asked this question, with approximately 63% of Black men asked about their status. The comparable figures for Hispanic and White males are 56% and 49%, respectively. Women are much less likely to be asked about their status relative to men. Black women however are more than five percentage points more likely to be asked relative to White women (a difference that amounts to 15% of the rate that White women are asked this question).

Table 7			
Percent of Stopped Asked About Probation/Parole Status, Percent Asked Who Are on Probation/Parole, and Percent Asked Who Are Not on Probation/Parole by Race/Ethnicity and Gender			
Race/Ethnicity	**All**	**Male**	**Female**
Panel A: Percent Asked Whether They Are on Probation/Parole			
White	44.0%	48.8%	35.1%
Black	55.2%	62.9%	40.3%
Hispanic	48.8%	55.9%	32.2%
Asian	17.2%	19.4%	14.0%
Native American	50.0%	50.0%	—
Other	29.5%	33.0%	23.9%
Panel B: Percent on Probation/Parole Among Those Asked			
White	16.4%	19.0%	9.7%
Black	15.6%	17.7%	9.1%
Hispanic	14.2%	14.9%	11.4%
Asian	4.8%	7.1%	0.0%
Native American	0.0%	0.0%	—
Other	3.6%	5.2%	0.0%
Panel C: Percent Not on Probation/Parole Among Those Asked			
White	36.8%	39.6%	31.7%
Black	46.6%	51.7%	36.6%
Hispanic	41.9%	47.6%	29.4%
Asian	16.4%	18.1%	14.0%
Native American	50.0%	50.0%	—
Other	28.4%	31.3%	23.9%

Panel B presents the percent of individuals stopped who are on probation or parole among those who are asked about their status. The overall Black–White difference in this percentage is small: 16.4% of Whites who are asked this question indicate that they are under community corrections supervision and 15.6% of Blacks. The figure is considerably lower for Hispanics, at 14.2%. These differences widen when we analyze the data of men and women

separately. Among White men, 19% of men who are asked indicate that they are under community corrections supervision. The comparable figures for Black and Hispanic men are 17.7% and 14.9%. The discovery rate among women is slightly lower for Black women relative to White women (9.1% and 9.7%, respectively) and higher for Hispanic women (11.4%).

Finally, the figures in Panel C reveal large intergroup differences in the percent of people who are asked about their community correction status and who are not on community correction. In approximately 47% of stops involving Black members of the public, someone who is not under community corrections supervision is asked if they are on probation or parole. The comparable figure for Hispanics is 42%, while the comparable figure for Whites is 37%. Again, we observe the largest disparities among men, with 52% of Black men not under supervision and asked whether they are, compared with 48% of Hispanic men, and 40% of White men. Women are less likely to fall in the category of being not under supervision but asked. Nonetheless, we still observe a sizable Black–White differential for women, with Black and White rates of 36.6% and 31.7%, respectively.

Figures 10 and 11 graphically display the Black–White and Hispanic–White differentials in these outcomes along with the margin of error for each differential. In Figure 10, the top row of graphs shows the differential in the likelihood of being asked for everyone and for men and women separately. The second row displays the differentials for whether the person is under community corrections supervision among those asked. The final row presents differentials for the percent who are asked about their status and are not under community corrections supervision. Both the Black-White and Hispanic–White differentials in the likelihood of being asked the question are clearly statistically significant. The Black–White differentials are

significant for both men and women, while the Hispanic-White differential is significant among men only (with a small, negative, and statistically insignificant differential among women). Regarding the likelihood that someone who is asked is actually under community corrections supervision, the lower discovery rate for Blacks relative to Whites is not statistically significant for either the overall comparison, or the comparison within men or women. For Hispanics, however, we see that the lower discovery rate for Hispanic men is clearly statistically significant. Finally, the likelihood that the stopped member of the public is asked and is not on probation/parole is much higher for Blacks, both overall and for men and women, with the differentials clearly statistically significant. The overall positive Hispanic–White differential is also statistically significant but driven by a large difference in this outcome between White and Hispanic men.

Figure 10

Percentage Point Difference in Individuals Asked About Probation/Parole Status,
Those Asked About Status Who Are on Probation/Parole, and
Those Asked About Status Who Are Not on Probation/Parole by
Race/Ethnicity and by Race/Ethnicity and Gender

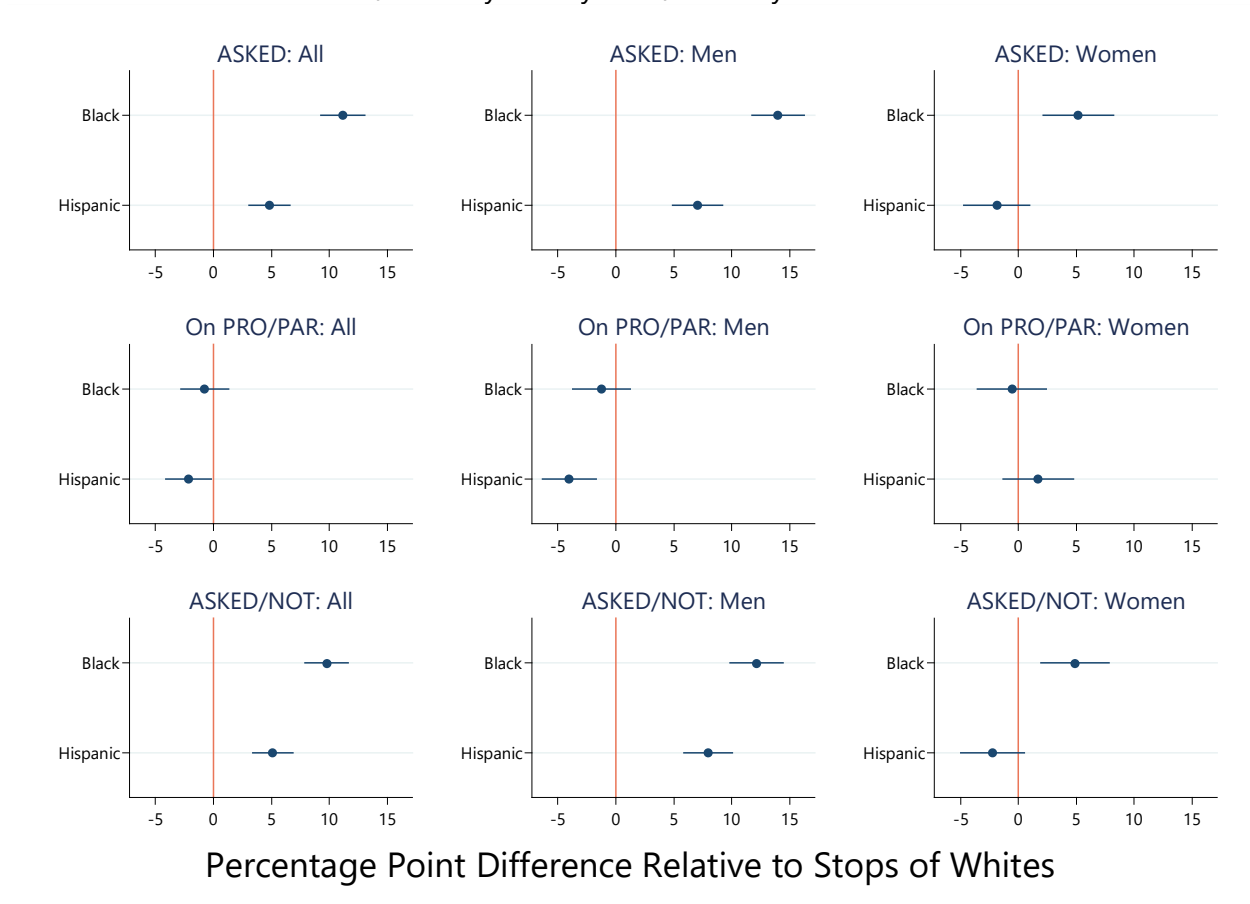Percentage Point Difference Relative to Stops of Whites

Figure 11 presents a comparable analysis by station. Here we focus only on the overall

differentials for men and women combined. The first row of graphs displays outcome

differentials and margins of error for stops attributable to the Lancaster station. The second row

presents comparable figures for the Palmdale station. In Lancaster, all three of the Black–White

differentials are statistically significant. We see that Black people are significantly more likely to

be asked whether they are on probation or parole, are less likely to be under community

corrections supervision when asked, and are much more likely to be asked and not under

community corrections supervision. The Black–White differentials are slightly smaller in Palmdale, and for the discovery outcome (on probation/parole among those asked), they are small and statistically insignificant. However, Blacks who are stopped in Palmdale are substantially more likely to be asked about their probation/parole status and are more likely to be asked and not be on probation or parole. Regarding the Hispanic–White differentials, Hispanics are less likely to be asked about their status in Lancaster relative to Whites and more likely in Palmdale. Both differentials are statistically significant, with the small negative differential in Lancaster marginally significant. In Lancaster, Hispanics who are asked about their status are statistically significantly less likely to be on probation/parole relative to Whites who are asked about their status. The difference in Palmdale is essentially zero. Finally, while Hispanics in Lancaster are not more likely relative to Whites to be both asked and not on probation/parole, the Hispanic–White differential in this outcome is positive and statistically significant in Palmdale.

Figure 11

Percentage Point Difference in Stopped Individuals Asked About Probation/Parole Status,
Those Asked About Status Who Are on Probation/Parole, and
Those Asked About Status Who Are Not on Probation/Parole by
Race/Ethnicity and by Race/Ethnicity and Station

Percentage Point Difference Relative to Stops of Whites
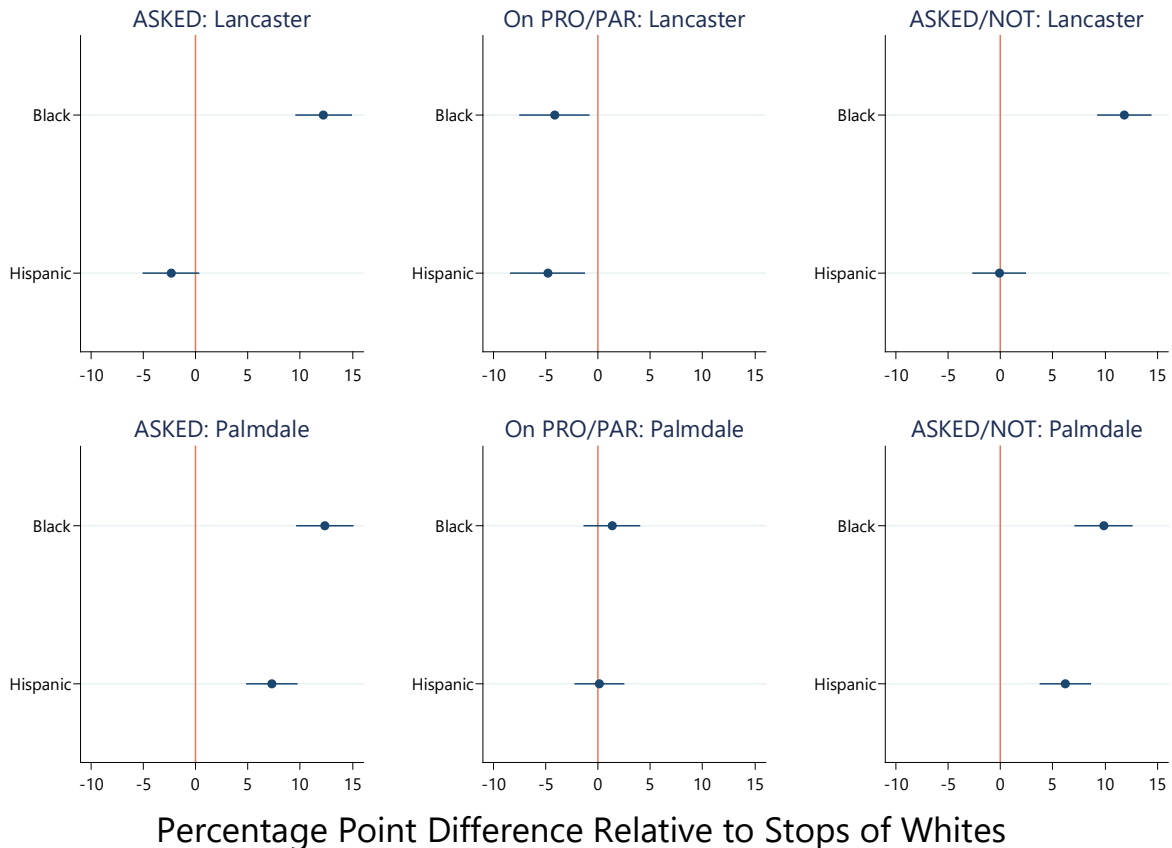
We then present multivariate analyses of these three outcomes comparable to our

analysis of searches and backseat detentions. Again, we estimate the overall racial/ethnic

disparities in the three probation/parole question outcomes, the disparities that remain after

controlling for stop type, the disparities that remain after further controlling for the reporting

districts where the stops occur, and the disparities that remain after statistically controlling for

the deputies making the stops (Figures 12–14). Again, for the Black–White disparities, we find

little effect of controlling for stop type and reporting districts on the overall disparities in these

outcomes. Controlling for deputies making the stops, however, reduces the Black–White disparity in the likelihood of being asked to zero, as well as the likelihood of being asked and not being on probation or parole. Again, this implies that relative to Whites who are stopped, Blacks who are stopped in the AV tend to be stopped by deputies who are relatively more likely to ask this question. The Hispanic–White differences in these outcomes are generally smaller yet still statistically significant overall. Here, however, we see that Hispanics tend to be stopped in reporting districts where this question is frequently asked and by deputies who tend to frequently ask this question.

Figure 12

Racial/Ethnic Disparities in the Percent of Stopped Individuals Asked
About Probation/Parole Status: With and Without Statistical Controls

- No statistical controls
- Adding controls for stop type
- Adding controls for reporting district
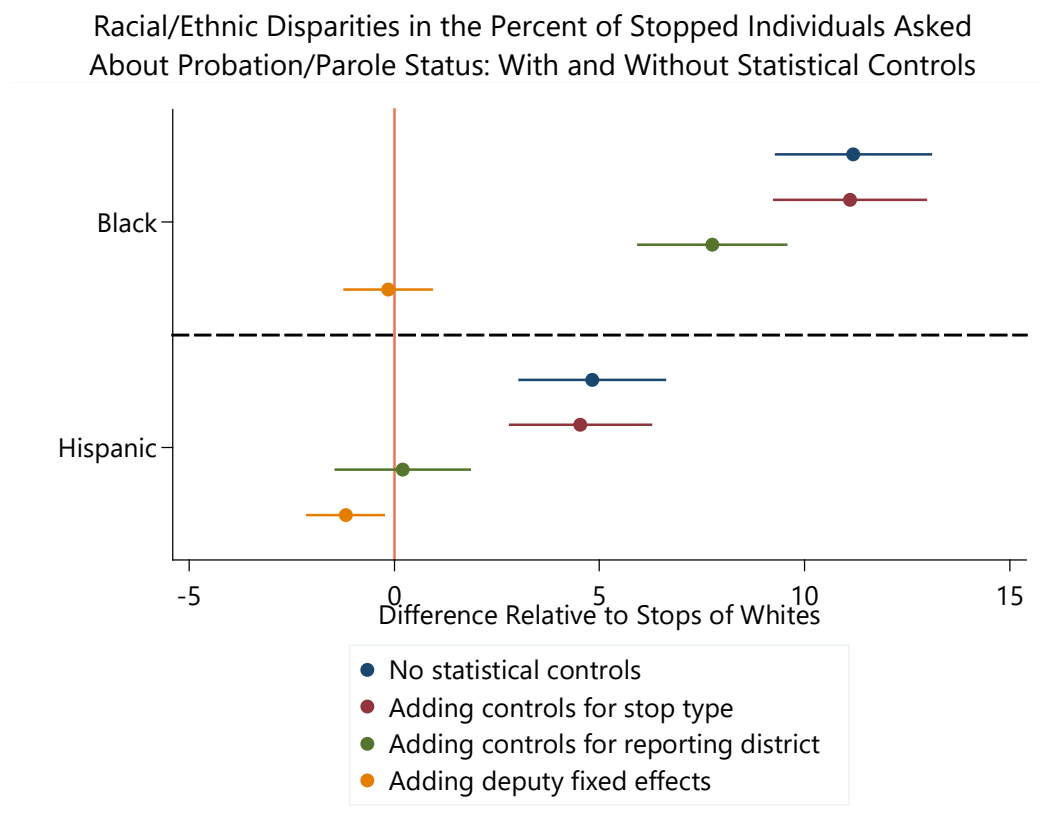- Adding deputy fixed effects

Figure 13

Racial/Ethnic Disparities in Percent of Stopped Individuals Asked About
Probation/Parole Status Who Are on Probation/Parole:
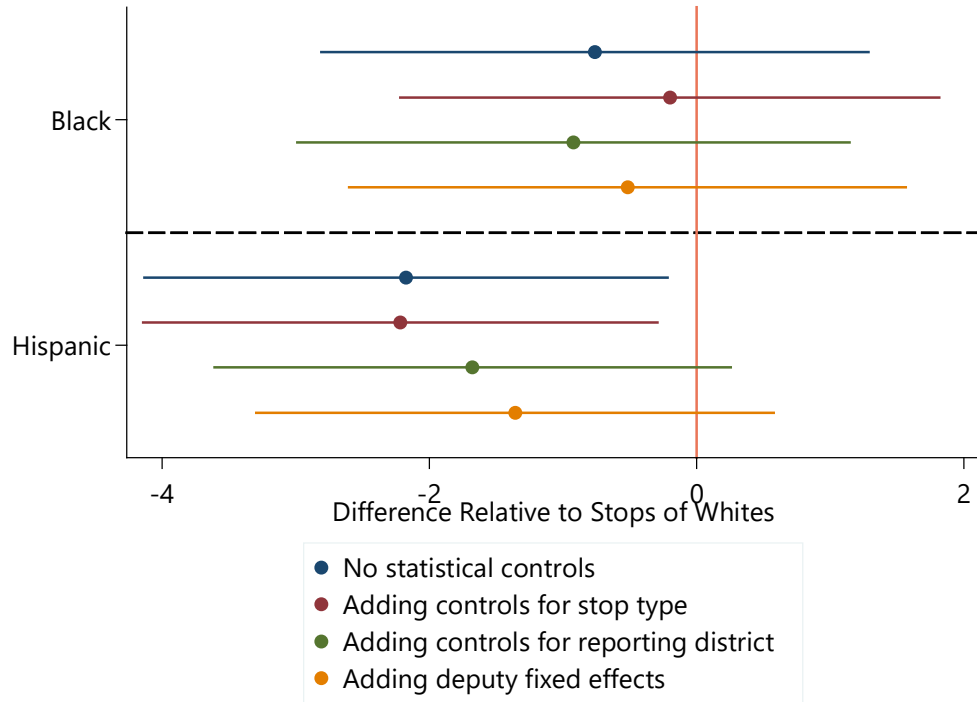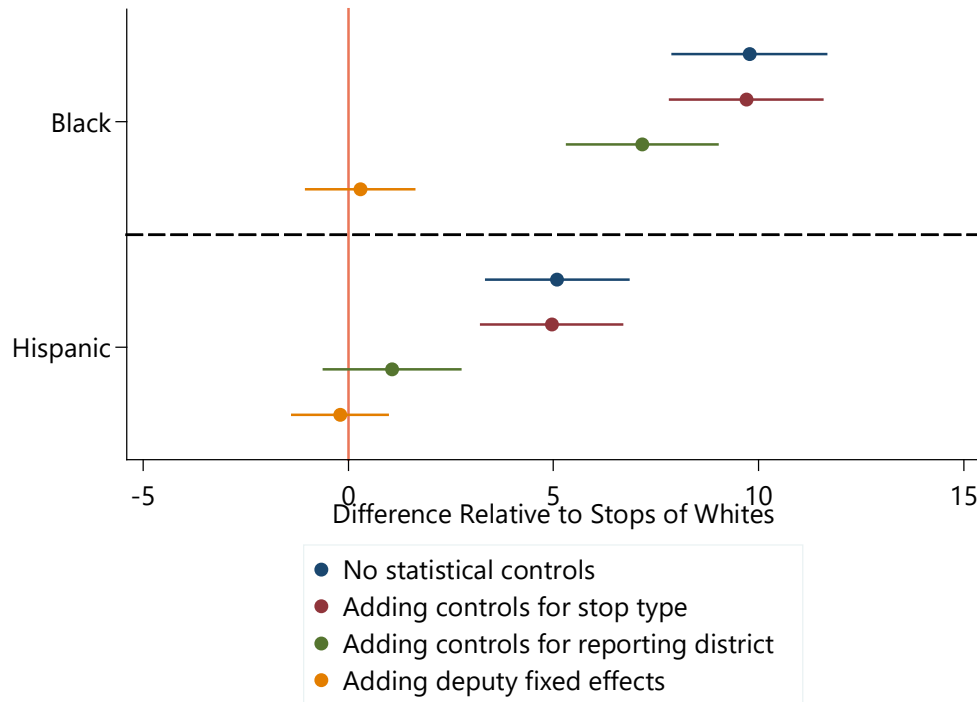With and Without Statistical Controls

Figure 14

Racial/Ethnic Disparities in Percent of Stopped Individuals Asked About
Probation/Parole Status Who Are Not on Probation/Parole: With and Without
Statistical Controls

Finally, Figure 15 plots the deputy-specific rate at which Blacks who are stopped are

asked about their status against the comparable rates for stops of Whites. The graph reveals a

large mass of stops made by deputies who either never ask about status (of either Whites or

Blacks) or who always or nearly always ask (again of both stopped White and Blacks). The figure

strongly suggests that deputies who ask this question for a higher proportion of stops do so in a

race-neutral manner. While we do not show the trend line in the figure, the estimated line has

an intercept close to zero and a slope that is statistically indistinguishable from one. This

indicates that deputies who ask this question frequently tend to do so of everyone, regardless of

race.

Figure 15

Deputy-Level Weighted Scatter Plot of the Percent of Stops of Black Citizens
Asked About Probation/Parole Status Against the Percent of Stops of White
Citizens Asked About Status

Note: Data points and regression line are weight by the number of stops of
Black people.

The data for the distribution of stops by race are based on deputy perception of the

race/ethnicity of the person stopped. The categories available to the officer on the stop form are

those listed in the stub of the table. To measure the race/ethnicity of the resident population, we

drew data from the five-year American Community Survey Public Use file, restricting the dataset

to observations in LA County and observations with 2010 PUMA codes 3703 (corresponding to

Lancaster) and 3704 (corresponding to Palmdale). Race is self-defined by survey respondents.

We define White as anyone who self-identifies as White alone and who does not identify as

Hispanic. We identify Black respondents as those who indicate that they are Black alone or Black

combined with any other race but who do not identify as Hispanic. We define Asian as individuals who identify as Asian alone or in combination with any race other than Black and who do not identify as Hispanic. Native Americans are identified by those who indicate a Native American affiliation but who do not self-identify as Hispanic. The "Other" category includes all other racial categories for people who do not identify as Hispanic. Finally, anyone who indicates Hispanic ethnicity is classified as Hispanic.

V.   ANALYSIS OF STOP OUTCOMES

The analysis of stop outcomes focuses primarily on the differential incidence by race/ethnicity with which stops generate contraband discoveries, arrests, citations, and vehicle seizures. Analyses of stop outcomes often focus on these differential rates with an eye toward detecting whether one group is subjected to excessive stops or searched to a degree that is not justified by underlying behavior. By comparing the "hit rate" across groups, where a hit may be defined alternatively as discovering contraband, citing a driver for a hazardous traffic violation, or generating an arrest, one can assess whether the rates at which one group is being subjected to police scrutiny is disproportionate relative to some base rate at which the members of the group on average break the law.

For example, suppose that there are two groups of people: members of Group A and members of Group B. Suppose further that among those stops where a search is performed, contraband is discovered among members of Group A 10% of the time and among Group B members 20% of the time. This pattern suggests that officers may be applying a lower probable cause threshold when deciding to search Group A members relative to Group B members, since

searches of persons from Group A generate fewer contraband discoveries. Stated alternatively, the lower hit rate for Group A suggests that there are instances where Group A members are subject to searches that they would not experience if they were from the other group.

To be sure, the hit rate incidence by group may in and of itself depend on deputy discretion depending on how a hit is defined. While contraband discovery is an outcome that should not reflect deputy discretion, arrest rate differentials across groups or differences in citation rates may certainly be driven by differential enforcement of the law. Moreover, how we define the set of stops that serve as the denominator for the hit rate calculation will vary from outcome to outcome. For example, it is standard practice in the racial profiling literature to calculate contraband discovery rates based on the subset of stops where a search takes place. For citations, however, a search is not necessary to detect a vehicle code violation, and hence all stops may provide the appropriate set of interactions that are "at-risk" of generating a citation.

In what follows, we present the incidence of outcomes for all stops and for various subsets of stops, usually based on whether a search occurs. We also present multivariate analyses that attempt to assess whether observable differences in the nature of stops between groups explain the differential hit rates that we observe. While we present hit rates using various subsets of the stops, we pick one baseline grouping that we feel is the most appropriate to subject to further multivariate analysis.

A.   Analysis of Contraband Discovery Rates

Table 8 presents the percent of stops where contraband is discovered by race/ethnicity (Panel A), and by race/ ethnicity with men and women examined separately (Panels B and C).

Within each panel and for each group we present three hit-rate tabulations: (1) the percent of all stops where contraband is discovered, (2) the percent of stops involving any form of search (person or vehicle) where contraband is discovered, and (3) the percent of stops where the person is searched and where contraband is discovered. The literature on racial profiling usually focuses on hit rates among stops where a person search occurs. Here, we present these three alternatives to facilitate a comprehensive look at the data.

Table 8			
Percent of Stops Where Contraband Is Seized by Race/Ethnicity and Gender: All Stops and Stops With Searches by Type of Search			
Type	**White**	**Black**	**Hispanic**
Panel A: All Genders			
All Stops	6.7%	4.8%	6.0%
Any Search	24.4%	15.4%	22.3%
Person Search	24.4%	15.7%	22.3%
Panel B: Men			
All Stops	7.5%	5.6%	6.8%
Any Search	22.6%	14.3%	21.1%
Person Search	22.7%	14.6%	21.2%
Panel C: Women			
All Stops	5.1%	3.2%	4.2%
Any Search	31.5%	20.7%	28.5%
Person Search	32.4%	23.9%	29.6%

In Panel A we see that for all stops and for stops involving searches, hit rates are highest among stops of White members of the public, followed by hit rates for Hispanics. Hit rates are lowest for stops of Blacks. When we look at all stops, the hit rate for Blacks is roughly two percentage points lower than that for Whites, with the Black hit rate approximately 71% of the White hit rate. The disparities are much larger when we look only at stops involving searches.

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For stops involving any search and stops involving a person search, the hit rate for Whites is 24.4%. Contraband is discovered in 15.4% of stops of Blacks when any search is performed and 15.7% when a person search occurs. The hit rate for Blacks when searches occur is approximately 63% to 64% of the hit rate for Whites. Hispanic hit rates when searches occur are much closer to those where the person stopped is White, though still lower by roughly two percentage points.

When the hit rates are tabulated for men and women separately, we observe several patterns. First, within racial/ethnic groups, overall hit rates are lower for women, but are much higher for women when we condition on whether a search occurs. Among stops involving a search, hit rates are highest for White women and lowest for Black men. Second, the Black–White disparities are sizable within gender, though they appear to be larger among women than among men. Again, we see hit rates for searches involving Hispanic men and Hispanic women that are quite close to the search rates for White men and White women.

Table 9 provides greater detail on contraband discoveries. The table presents the distribution of stops within race/ethnicity by the type of contraband seized, with a "No seizure" category included.[11] The table presents results for all stops, stops involving any search, and stops involving a person search. Among all stops, discovery of a controlled substance occurs most frequently among Whites, followed by Hispanics, and Blacks. A similar pattern is observed for the discovery of illegal property. The only discovery rate where the hit rate is higher for Blacks and Hispanics is the "vehicle" category.

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[11] The figures in the columns often add up to more than 100% since a single stop may generate multiple contraband discoveries.

Table 9									
Percent of Stops Yielding Seizure of Specific Contraband by Race/Ethnicity: All Stops, Stops Involving Any Form of Search, and Stops Involving Person Search									
Specific Contraband Seized	**All Stops**			**Stops Involving Any Search**			**Stops Involving a Person Search**		
	White	**Black**	**Hispanic**	**White**	**Black**	**Hispanic**	**White**	**Black**	**Hispanic**
No Seizure	93.4%	95.2%	94.0%	75.6%	84.6%	77.7%	75.6%	84.3%	77.7%
Cash	0.1%	0.0%	0.0%	0.2%	0.0%	0.2%	0.3%	0.1%	0.2%
Controlled Substance	4.7%	2.8%	3.7%	17.6%	8.9%	14.0%	18.1%	9.8%	15.0%
Illegal Property	1.9%	1.3%	1.8%	7.2%	4.0%	6.7%	7.1%	4.3%	7.4%
Suspicious Property	0.1%	0.1%	0.0%	0.2%	0.1%	0.0%	0.3%	0.2%	0.0%
Vehicle	0.3%	0.5%	0.7%	0.8%	1.5%	2.4%	0.4%	0.4%	0.7%
Weapons	0.9%	0.9%	0.7%	3.2%	3.1%	2.8%	3.3%	3.5%	3.1%

Note: Figures in the columns may add to more than 100% since multiple contraband discoveries are possible.

Turning to stops involving searches, we observe discretely lower discovery rates for searches of Black people relative to those of Whites for controlled substances and illegal property. Searches of Blacks are slightly less likely to discover a weapon when we condition on any search occurring and slightly more likely to generate a weapon when we condition on a person search. Hit rates among stops involving searches for Hispanics are generally closer to those for Whites, though cumulatively lower. Table 10 presents similar tabulations by men and women. The patterns basically conform to those in Table 9. Here, however we see slightly higher rates of weapons discovery for Black men relative to White men. Within male and female categories, we see much lower discovery rates for controlled substances and illegal property for Black stops relative to White stops.

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Specific Contraband Seized	All Stops			Stops Involving Any Search			Stops Involving a Person Search		
	White	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic
Table 10									
Percent of Stops Yielding Seizure of Specific Contraband by Race/Ethnicity and Gender: All Stops, Stops Involving Any Form of Search, and Stops Involving Person Search									
Panel A: Men									
No Seizure	92.5%	94.4%	93.2%	77.4%	85.7%	78.9%	77.3%	85.4%	78.8%
Cash	0.1%	0.0%	0.1%	0.2%	0.0%	0.2%	0.2%	0.0%	0.2%
Controlled Substance	5.4%	3.3%	4.3%	16.3%	8.3%	13.4%	17.0%	8.9%	14.3%
Illegal Property	2.1%	1.3%	1.9%	6.5%	3.2%	6.0%	6.4%	3.5%	6.4%
Suspicious Property	0.1%	0.1%	0.0%	0.2%	0.2%	0.0%	0.2%	0.2%	0.1%
Vehicle	0.4%	0.4%	0.6%	0.9%	1.0%	1.9%	0.4%	0.4%	0.7%
Weapons	1.0%	1.3%	0.9%	3.1%	3.4%	2.9%	3.3%	3.7%	3.1%
Panel B: Women									
No Seizure	94.9%	96.8%	95.8%	68.5%	79.3%	71.5%	67.7%	76.1%	70.4%
Cash	0.1%	0.0%	0.0%	0.4%	0.3%	0.0%	0.5%	0.4%	0.0%
Controlled Substance	3.5%	1.7%	2.5%	22.2%	11.8%	17.3%	23.0%	17.0%	19.9%
Illegal Property	1.6%	1.3%	1.5%	10.0%	8.0%	10.2%	10.3%	10.9%	14.1%
Suspicious Property	0.1%	0.0%	0.0%	0.4%	0.0%	0.0%	0.5%	0.0%	0.0%
Vehicle	0.1%	0.6%	0.7%	0.7%	4.1%	5.2%	0.5%	0.4%	0.7%
Weapons	0.6%	0.2%	0.3%	3.3%	1.4%	2.4%	3.4%	2.2%	2.9%

Note: Columns may sum to more than 100% since some for some stops, officers may record more than one contraband discovery per person per stop.

As one final set of descriptive statistics before we present the multivariate analysis,

Table 11 presents contraband discovery rates by race for stops where a person search occurs.

Here we present separate hit rates by the stated authority to conduct the search. Hit rates for

Black searches are generally lower than those for White searches for all categories, except for

searches where there is evidence of criminal activity and where there is a detectable odor of

contraband. These two search categories account for approximately 10% of person searches of

Blacks and 7% of person searches of Whites (see the distributions in Table 5).

Table 11 Percent of Person Searches Yielding Contraband Seizure by Race/Ethnicity and Authority to Conduct the Search			
Stated Authority	**White**	**Black**	**Hispanic**
Incident to Arrest	36.7%	24.2%	33.5%
Consent Search	15.4%	10.6%	13.4%
Evidence of Criminal Activity	40.4%	45.2%	44.0%
Inventory	38.5%	33.3%	41.4%
Odor of Contraband	3.3%	10.4%	14.3%
Condition of Probation/Parole	19.2%	10.7%	19.2%
Contraband Visible	63.3%	36.4%	44.7%
Weapons Patdown	13.3%	11.0%	11.2%
Other	17.1%	14.7%	16.3%

Having tabulated hit rates for various subgroups, we turn now to a multivariate analysis

for the contraband discovery outcome. Here we focus on stops where a search occurs. This

outcome is generally the focus of attention in the racial profiling literature. Our aim here is to

assess whether average differences in the nature of the stops between Blacks, Whites, and

Hispanics can account for the observed difference in hit rates. For example, in Table 5 we

observe that Blacks subjected to a person search are more likely to be searched due to a

detectable odor of contraband, as a condition of probation/parole, and for a weapons patdown.

In Table 11 we see that within each racial/ethnic group, hit rates are generally lower for these

types of searches. Hence, differences across racial/ethnic groups in the stated authority to

search may in part explain the differential hit rates.

To explore these possibilities, we use multivariate regression analysis to first estimate overall race/ethnicity disparities without adjusting for stop and search characteristics (basically the difference in hit rates where a search occurs, which was presented in Table 7), disparities that remain after statistically adjusting for the stated search authority (categories list in Table 5) and the stated reason for contact (categories listed in Table 2), disparities that remain after further adjusting for the difference across racial groups in the reporting district where the stop and search occurs, disparities that remain after further adjusting for the gender, age, and probation/parole status of the stopped individual, and the disparities that remain after statistically adjusting for the specific deputies making the stops.[12]

Figure 16 summarizes the results of this exercise. The figure graphically displays the Black–White and Hispanic–White disparities in contraband discovery rates from the models with no adjustment, the model that adjusts for difference in search authority and reason for contact, the model that further adjusts for differences in the reporting districts where the searches occur, the model that further adjusts for citizen demographics and community corrections status, and finally the model that controls for the effects of specific deputies on outcomes. Similar to the previous graphical analysis of disparities, the figure marks the overall difference by color, and the horizontal line centered around the estimate marker indicates the margin of error of the

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[12] For these models, we restrict the sample to stops involving Whites, Blacks, and Hispanics where a person search occurs. To be more specific about our methodology, the first model involves a multivariate regression of a dummy variable indicating a contraband discovery on dummy variables measuring Black stops and Hispanic stops. The second model adds complete sets of fixed effects for search authority categories and reason-for-stop categories. The third model adds a complete set of fixed effects for reporting district. We observed stops occurring in 84 separate reporting districts. The next model adds dummy variables for gender and probation/parole status and a linear term for age. The final model adds a complete set of dummy variables for the specific deputies observed making stops in the data during the time period being analyzed. The standard errors for the race/ethnicity coefficient are tabulated by clustering the standard error by the stop identified (i.e., the variable JULIANTAG).

estimated difference. Relative to the overall Black–White disparity of approximately nine

percentage points, adjusting for these various control variables reduces the remaining hit rate

disparity to approximately six percentage points. This six-percentage point differential is

statistically significant even after controlling for this large set of factors. It appears that both

differences in search authority as well as differences where stops occur are partially to blame for

the relatively lower hit rates of Blacks. In contrast to the search decision and backseat detention

outcomes, here we find little evidence that differences in which deputies are stopping and

searching Black people relative to Whites explain the differential hit rates. This essentially means

that deputy-specific hit rates tend to be lower for searches of Black people relative to searches

of White people. We will further document this pattern below.

Figure 16

Racial/Ethnic Disparities in Contraband Seizure Rates: With and Without Statistical Controls
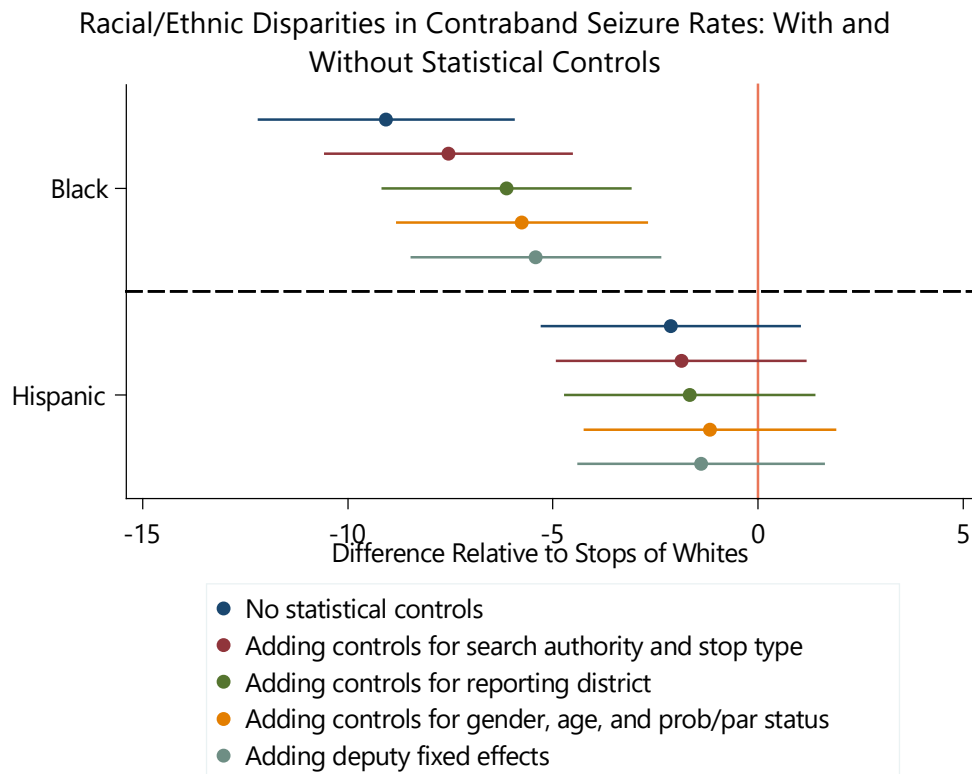
As we observed in Table 8, the overall Hispanic–White differential is smaller (roughly 2.1 percentage points) and as we now observe in Figure 16, not statistically significant. Adding control variables slightly shrinks the remaining disparities. None of the estimates of the Hispanic–White differential in Figure 16 are statistically significant.

Figure 17 presents comparable analysis where models are separately estimated according to whether a person is male or female. We see slightly more negative Black–White and Hispanic–White disparities in hit rates for women relative to men. Aside from this difference, however, the qualitative patterns are comparable to those we observe in Figure 16 when the models are estimated for two genders together. The Black–White disparities are partially attributable to the control variables that we add to the model. However, after controlling for these factors, statistically significant Black–White disparities remain. None of the Hispanic–White disparity estimates are statistically significant.

Figure 17

Racial/Ethnic Disparities in Contraband Seizure Rates by Gender: With and
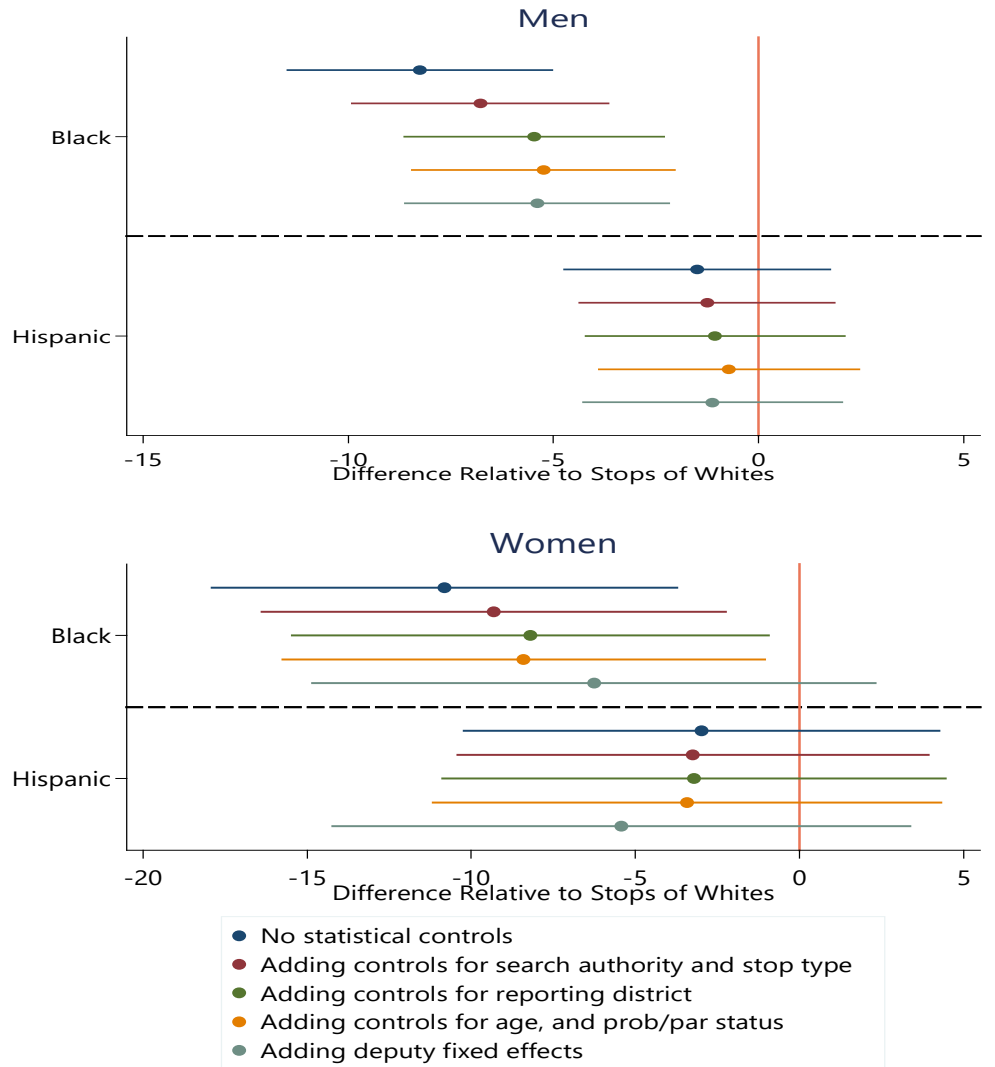Without Statistical Controls

Figure 18 presents a comparable analysis where models are estimated separately by

station. The patterns again are qualitatively similar to what we have seen. Controlling for search

authority, reason for contact, reporting district, and person demographics and community

corrections status explains some of the Black–White disparities, though the unexplained

disparities are still statistically significant. We see larger Black–White hit-rate disparities in

Palmdale relative to Lancaster. Again, none of the Hispanic–White disparities from these models

are statistically significant.

Figure 18

Racial/Ethnic Disparities in Contraband Seizure Rates by Station: With and
Without Statistical Controls
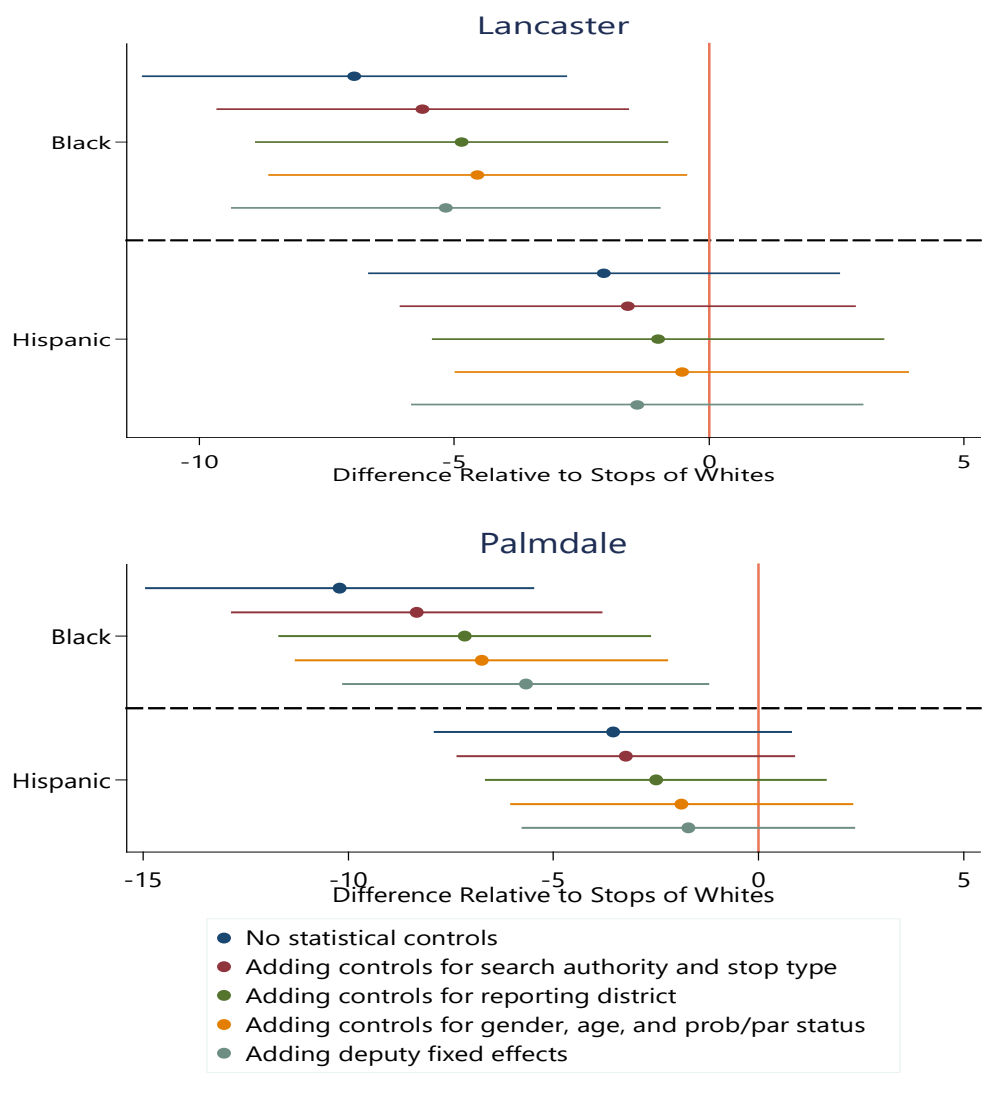
Finally, in Figure 19 we explore hit rates measured at the deputy level. For each deputy

we observe in the data, we plot the hit rate for searches that the deputy conducts of Black

people against the corresponding hit rate for the same deputy's searches of White people. The

data points are marked by circles that are larger for deputies who stop more Black people.

Again, the 45-degree line marks the points that would indicate equal hit rates for searches of

Blacks and Whites. The mass of data points are located below this line, indicating that within

deputy, hit rates are generally lower for searches of Black people relative to searches of White

people.

Figure 19

Deputy-Level Weighted Scatter Plot of Percent of Searches of Black Citizens
With Contraband Discovered Against Percent of Searches of White Citizens
With Contraband Discovered
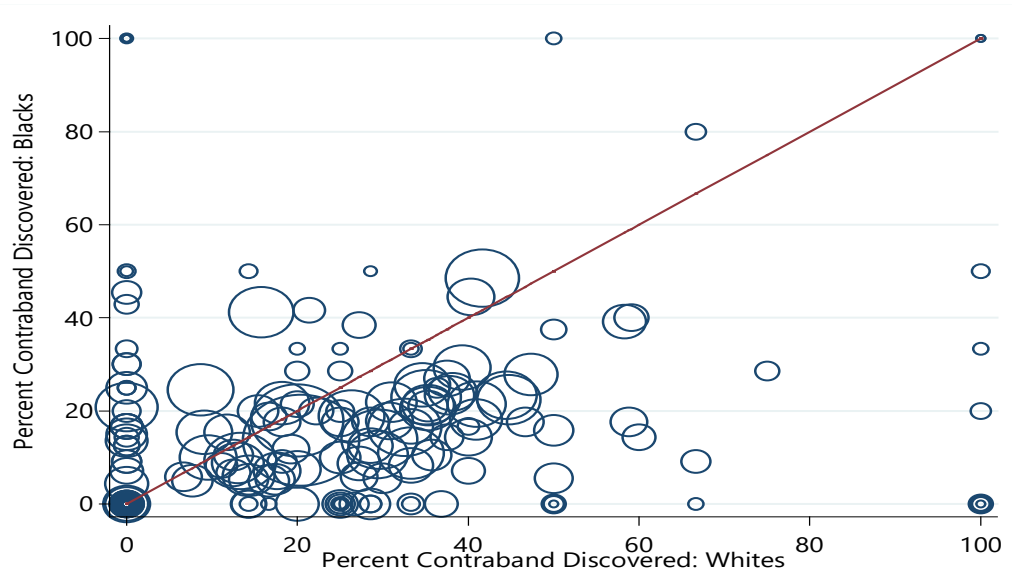
Note: Data points are weighted by the number of stops of Black people.

B.   Analysis of Arrest Rates

In the data we received, we observed whether the stop involves an arrest, whether the

arrest was for a felony offense, and whether the arrest was for a misdemeanor offense. For

multiple person stops, it is difficult to tell within the data which of the individuals was arrested

and for what without reading the narrative fields. Moreover, the language within the narratives is

far from standardized, which makes it quite difficult to use machine reading for the narrative

field to determine who is arrested. Nonetheless, we can distinguish differences in the rate at

which citizens who are stopped are involved in stops where an arrest occurs. Moreover, given

that most stops involve a single person, in most instances an arrest means that the individual in

question is arrested.

An additional issue with the arrest outcomes concerns the fact that in many stops where

a misdemeanor arrest occurs, the arrest involves a citation and release in the field for common

vehicle code violations such as driving without a license, lacking proof of insurance, or having an

expired registration. Hence, what might be commonly thought of by members of the public as

violations that would result in a citation are coded as misdemeanor arrests, even though these

arrests rarely result in a jail booking. Of course, felony arrests (which are also separately flagged)

are more serious and clearly distinguishable from less serious vehicle or local ordinance

violations.

Here we present a hit rate analysis where arrests are the focus of analysis. We first

present some simple tabulations demonstrating the proportion of stops that result in either a

citation or an arrest and then present an in-depth analysis of arrests specifically (we analyze

citations in the next section). Table 12 presents the percent of person-stop observations where

either a citation or arrest occurs. We present separate calculations for citations or arrests,

citations, all arrests, felony arrests, and misdemeanor arrests by race/ethnicity for all stops, stops

involving any form of search, and stops involving a person search. While 66.3% of stops of

Whites result in a citation or arrest, the figure is nearly 10 percentage points lower for Blacks (56.4%). The comparable figure for Hispanics is closer to, yet slightly lower than, that for Whites (63.2%). Relative to White stops, citation rates are lower for Blacks (by slightly more than 10 percentage points), while arrest rates are somewhat higher (by 6.2 percentage points). The higher arrest rate for Blacks is driven entirely by differences in misdemeanor arrests. Blacks and Hispanics are slightly less likely to be arrested for a felony offense.

Table 12					
Percent of Stops Resulting in a Citation and/or Arrest by Race/Ethnicity: All Stops, Stops Involving Any Search, and Stops Involving Person Search					
Race/Ethnicity	Citation and/or Arrest	Citation	Arrest	Felony Arrest	Misdemeanor Arrest
Panel A: All Stops					
White	66.3%	54.0%	23.1%	5.4%	18.5%
Black	56.4%	43.7%	29.9%	4.6%	26.3%
Hispanic	63.2%	52.8%	24.8%	4.3%	21.3%
Panel B: Stops Involving Any Search					
White	61.6%	25.6%	57.3%	18.9%	41.2%
Black	56.6%	27.6%	52.8%	14.7%	41.2%
Hispanic	62.4%	30.2%	57.8%	16.0%	44.9%
Panel C: Stops Involving Person Search					
White	61.0%	23.7%	58.1%	19.8%	40.2%
Black	55.6%	23.9%	52.8%	16.2%	40.1%
Hispanic	61.5%	26.2%	58.3%	17.7%	44.0%

When we look at stops where searches occur (either any search or restricted to person searches), the pattern reverses. Focusing on stops where any search occurs, Blacks and Hispanics are slightly more likely to receive a citation. In addition, Black searches are 4.5 percentage points less likely to result in an arrest. This difference amounts to roughly 8% of the arrest rate of searched Whites. This differential is driven entirely by a lower likelihood of a felony arrest for

searches of Blacks relative to searches involving Whites. For stops involving a search of any kind, there is no Black–White difference in misdemeanor arrest rates. Hispanics who are searched are slightly more likely to be arrested overall, less likely to be arrested for a felony, and more likely to be arrested for a misdemeanor relative to Whites who are searched. We observe comparable patterns if we look at person searches only.

Table 13 presents comparable tabulations with men and women considered separately. Beginning with all stops regardless of whether a search occurs, the most notable patterns are the relatively high misdemeanor arrest rates for Black men and women relative to White men and women, and the relatively lower citation rates. The misdemeanor arrest rate is also relatively high for Hispanic men but not for Hispanic women. Regarding stops where a search occurs, the patterns that we observed in Table 12 are also observed when we compare men and women. Searches are less likely to result in an arrest for Blacks relative to Whites for both men and women. This difference is driven by relatively lower felony arrest rates for stops where Blacks are searched. Arrest rates for Hispanics who are searched are higher for Hispanic men relative to White men, but lower for Hispanic women relative White women. For men, this is driven by a higher likelihood of arrest for misdemeanor offenses.

Given the high rate of misdemeanor arrests for Blacks, we decided to dig deeper into the data to provide a characterization of the incidents that are coded as involving a misdemeanor arrest. To do so, we drew random samples of 100 person stops involving misdemeanor arrests for Whites, Blacks, and Hispanics (300 observations in total) and read through the narrative comment fields to identify the exact reason for the arrest.[13] Table 14 presents the results.

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[13] After reading through the comment fields, we found several codes that were frequently used as well as short-hand notation used to record specific violation. We used these codes to machine read each comment field and to flag them as involving a specific offense. To be specific, any stop where the narrative field contains within the complete field the text WARR, M/W, WRR, WRN, or WARANT was coded as misdemeanor arrest for an outstanding warrant. Any stop where the narrative field contains 11350, 11354, 11377, 11377A, 11378, 11550, 11550A, 11352, or 11379 was coded as an arrest for misdemeanor drug possession. Stops where the narrative includes the text 11364 were coded as drug paraphernalia. Stops with narrative fields containing 12500, 12500A, 14601.1, and 14601.1A were coded as driving without a license or driving with an expired license. Stops with narrative fields containing the text 4000A or 4000A1 were coded as expired registration. Stops where the narrative field contains the text 16028, 16028A, or 16029 were

Misdemeanor arrests of Whites are considerably more likely to involve drug possession or drug paraphernalia (39% of all arrests) relative to misdemeanor arrests of Blacks (13%) and Hispanics (28%). White misdemeanor arrests are also more likely to involve driving under the influence, with 5% of cases for Whites and 1% of cases for Blacks involving this offense. Blacks are most likely to experience a misdemeanor arrest for driving without a license or on a suspended license (55% compared with 31% for White arrests and 48% for Hispanic arrests), driving with expired registration (21% for Blacks compared with 9% and 16% for Whites and Hispanics, respectively), and/or not having evidence of insurance (14% for Blacks compared with 5% and 10% for Whites and Hispanics, respectively). Roughly equal percentages of White and Black misdemeanor arrests involve an outstanding warrant (42% and 43%, respectively), while Hispanic misdemeanor arrests are somewhat less likely to involve an outstanding warrant (35%).

Table 14			
Percent of Random Samples of Misdemeanor Arrests with Common Charges			
Charge	White	Black	Hispanic
Drug Possession	27%	7%	18%
Drug Paraphernalia	12%	6%	10%
No/Suspended License	31%	55%	48%
Expired Registration	9%	21%	16%
No Insurance	5%	14%	10%
DUI	5%	1%	2%
Warrant	42%	43%	35%

coded as no evidence of insurance. Finally, stops where the narrative field includes the text 23152, 23152A, 23152B, 23152E, 23152F were coded as driving under the influence. Note that this machine-reading strategy looks for the text within the full narrative. Hence, the narrative may contain evidence of more than one of these violations. For example, we frequently observed instances where the misdemeanor arrest was for no license, no insurance, and no registration. Moreover, there were many instances where one of these violations co-occurred with a misdemeanor arrest for an outstanding warrant.

For the multivariate analysis, it is not immediately obvious whether we should focus on all stops or on stops involving searches in studying race disparities in arrests. One might argue for using all stops, given the relatively high rate that Blacks are stopped relative to Whites. Recall that the percent of stops of Blacks is nearly double the percent of the resident population of the AV that is Black. By contrast, Whites and Hispanics are underrepresented among those stopped by deputies. One might conceive of the arrest rate as akin to a hit rate analysis to assess whether these differential stop rates are justifiable. Alternatively, one might be interested in the extent to which overall arrests reflect offenses where the deputies may exhibit a greater degree of discretion. This would certainly be the case for misdemeanor arrests relative to felony arrests.

Arguments in favor of focusing on stops where searches occur derive primarily from the fact that one can think of an arrest as an outcome and evidence of criminal offending. Of course, if deputies are selectively arresting in a manner that generates a race disparity independent of race/ethnicity difference in stop characteristics, such an outcome test would be compromised relative to a more objective outcome such as contraband discovery.

Given this ambiguity, here we present multivariate analyses of both outcomes: the likelihood of arrest for all stops and the likelihood of arrest conditional on a search occurring. For each we estimate race/ethnicity disparities in arrest rates using six model specifications: (1) a model with no controls other than the race/ethnicity dummies, (2) a model that adds controls for the stated search authority (if searched) and reason for the contact, (3) a model that adds to the previous model controls for reporting districts, (4) a model that adds controls for the stopped individual's demographics and community corrections status, (5) a model that adds

controls for any contraband discovery by type, and (6) model that adds a complete set of controls for the specific deputies involved in the stop.

Figure 20 presents results where we model the likelihood of an arrest using all stops. The top figure shows group differences and margins of error for the likelihood of any arrest, the middle figure shows disparities for the likelihood of a felony arrest, while the bottom figure shows the results for the likelihood of a misdemeanor arrest. The results show that the Black–White disparities in arrest rates are statistically significant in all models and driven entirely by a higher misdemeanor arrest rate. Controlling for reporting districts causes a decline in the differential, suggesting that Blacks are more likely to be stopped in reporting districts that generate more arrests relative to Whites. The results also suggest that controlling for contraband discovery widens the differential slightly. In other words, statistically adjusting for the difference in contraband discovery rates actually increases the race disparity in arrests. This reflects the fact that contraband discovery rates are lower for Blacks (a factor that should in isolation lead to a lower arrest rate for Blacks relative to Whites) in conjunction with the fact that discovering contraband should increase the likelihood of an arrest. Finally, controlling for involved deputies also slightly closes the Black–White differentials, suggesting that Black stops tend to involve deputies who make misdemeanor arrests at a higher rate.

Figure 20

Racial/Ethnic Disparities in Arrest Rates of All Stops: With and Without Statistical Controls
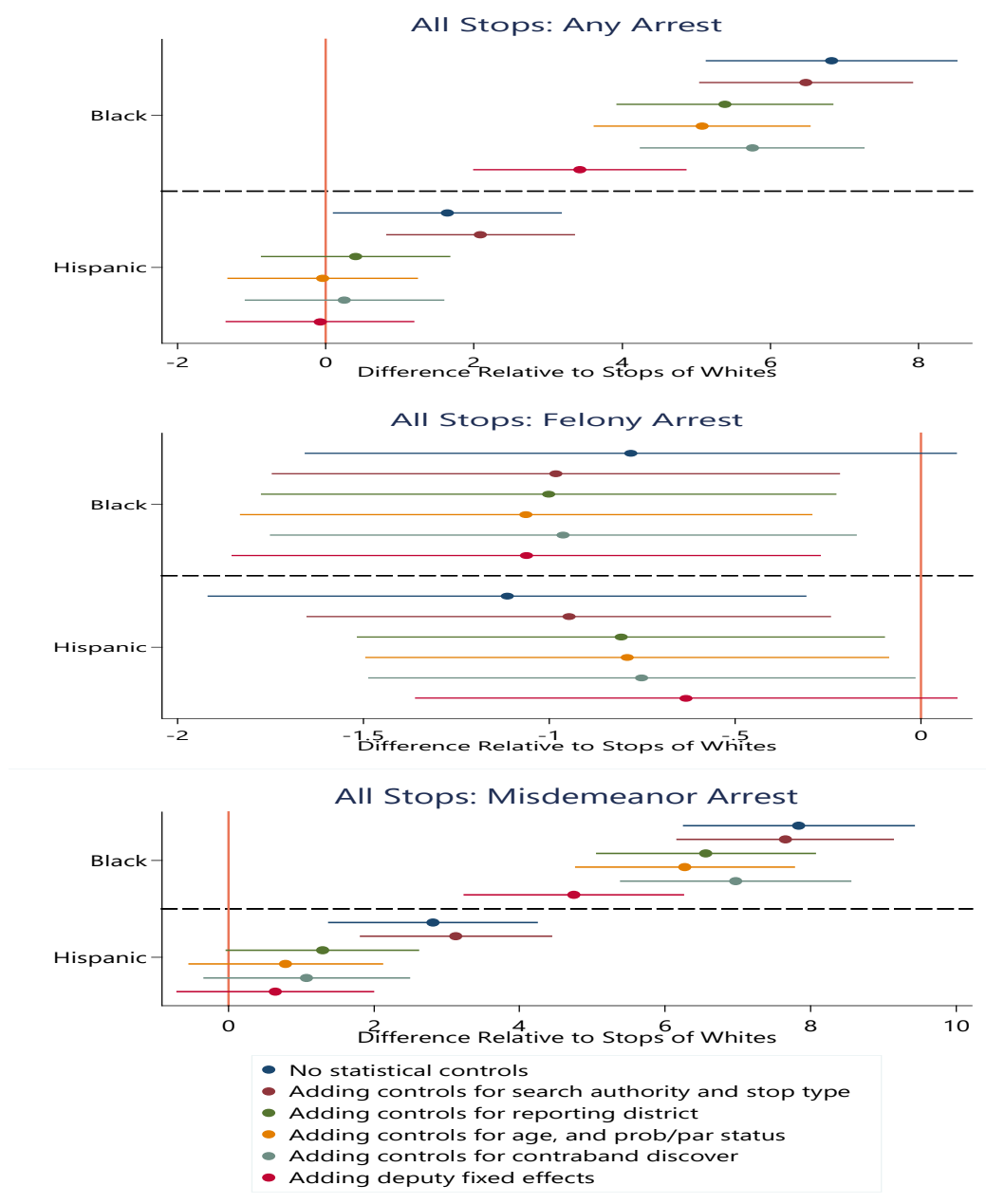
The unadjusted Black–White difference in felony arrest rates is not quite statistically

significant. However, once we add controls to the models, the results indicate that Black stops

are statistically significantly less likely to result in a felony arrest relative to White stops. Moreover, the difference persists even after adding all the controls to the model.

The unadjusted Hispanic–White differential is statistically significant. Moreover, adding controls for search authority and the nature of the stop widens the disparity slightly. Controlling for reporting district drives the disparity to near zero, indicating that the relatively higher arrest rate for Hispanics is driven mostly by a difference in where they are being stopped relative to Whites. For Hispanic people, we also see significantly lower felony arrest probabilities that are not explained by the observable characteristics of the stops. Hence, the higher arrest rates for Hispanics are primarily due to higher misdemeanor arrest rates.

Figure 21 presents a comparable analysis where we restrict the stops to those where a search occurs. When we do not statistically adjust, Blacks who are searched are less likely to be arrested relative to Whites who are searched. This difference is statistically significant and driven by a relatively lower felony arrest rate among Blacks who are searched. Adjusting for stop characteristics generates some interesting patterns. First, controlling for the nature of the stop and the search authority shrinks the Black–White difference, suggesting that Blacks are often searched under authorities that are less likely to generate an arrest. In addition, controlling for contraband discoveries yields a positive Black–White arrest disparity, though this effect is not quite statistically significant. Again, given that Blacks are less likely to be discovered carrying contraband relative to Whites, this finding suggests that if Blacks who are stopped faced similar arrest probabilities as otherwise similar Whites, then the arrest differential we would observe would be even more negative than what we see in the unadjusted model.

Figure 21

Racial/Ethnic Disparities in Arrest Rates of Stops Involving Searches: With and Without Statistical Controls
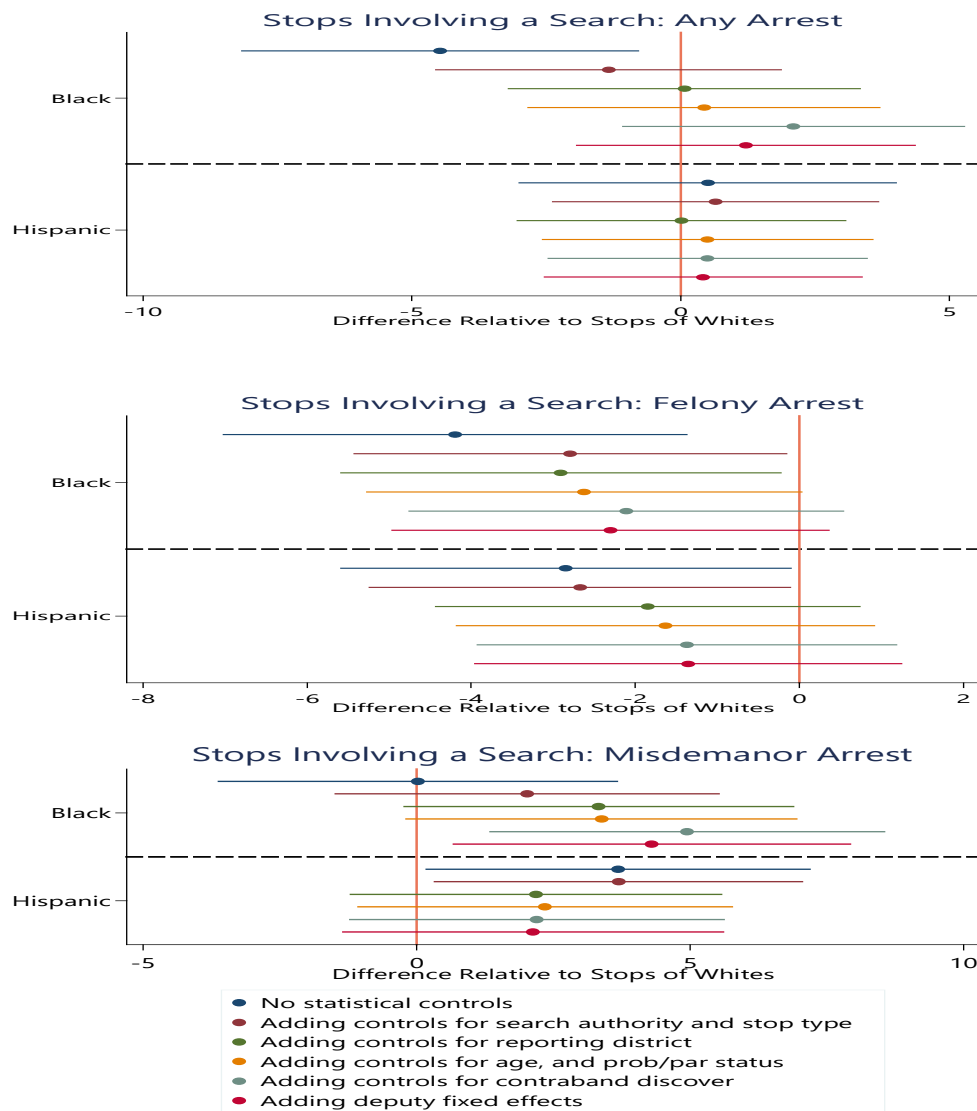
Again, we observe that Blacks who are searched are significantly less likely to be arrested for a felony, a finding that is robust to adding controls, though doing so shrinks the differential. We also observe no Black–White differential in misdemeanor arrests in the unadjusted model, but significant positive Black–White differentials when we add controls. This suggests that Blacks

who are searched are more likely to experience a misdemeanor arrest relative to otherwise similar Whites.

We observe no significant Hispanic–White arrest rate differentials when we focus on any arrest. However, the data suggest that Hispanics who are searched are less likely to be arrested for a felony and more likely to be arrested for a misdemeanor. These differentials are statistically significant in the models that do not adjust for other variables, but they shrink toward zero and become statistically insignificant when we add control variables.

C.   Analysis of Difference in Citations

We have already seen that there are racial and ethnic disparities in the likelihood that a stop results in a citation. Here we explore these disparities further, decomposing citations into whether they are for hazardous driving or for non-hazardous violations. Given that citations can be issued with or without a search, here we simply focus on interracial and inter-ethnic difference in citation rates using all stops.

Table 15 presents the percent of stops that result in any citation, a hazardous citation, or a non-hazardous citation. Stops of Blacks are substantially less likely to result in any citation, with 54% of White stops resulting in a citation compared with 43.7 of Black stops. The citation rate for Hispanic stops (52.8%) is closer to that of Whites. The overall Black–White disparity is driven by a substantially lower likelihood that Black stops result in a hazardous citation (26.2% for Blacks relative to 38.9% for Whites) and a slightly higher rate of non-hazardous citations (17.7% for Black stops compared with 15.3% for White stops). Citation rates by type for Hispanic stops are close to those for Whites.

Table 15			
Percent of Stops Resulting in Citation by Race/Ethnicity			
Race/Ethnicity	**Any Citation**	**Hazardous**	**Non-Hazardous**
White	54.0%	38.9%	15.3%
Black	43.7%	26.2%	17.7%
Hispanic	52.8%	37.9%	15.1%

Table 16 presents similar tabulations that distinguish between stops of men and of women. We observe consistently lower citation rates for men relative to women. Black males have the lowest hazardous citation rate, with 20.3% of Black males receiving a hazardous citation compared with 30.6% of Hispanic males and 33.7% of White males. Black males are slightly more likely to receive non-hazardous citations. Among women, Black women are the least likely to receive a hazardous citation (37.8% compared with 48.6% of White women and 53.9% of Hispanic women). Similar to men, Black women are slightly more likely to receive a non-hazardous citation.

Table 16						
Percent of Stops Resulting in Citation by Race/Ethnicity and Gender						
	Men			**Women**		
Race/Ethnicity	**Any Citation**	**Hazardous**	**Non-Hazardous**	**Any Citation**	**Hazardous**	**Non-Hazardous**
White	48.4%	33.7%	14.9%	64.3%	48.6%	16.1%
Black	37.1%	20.3%	17.1%	56.4%	37.8%	18.8%
Hispanic	46.1%	30.6%	15.7%	67.7%	53.9%	14.0%

Figure 22 displays the interracial and inter-ethnic difference in citation rates by citation type and with men and women considered separately. The Black–White differentials for the any citation outcome and for hazardous citations are clearly statistically significant (both when men

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and women are combined as well as when differentials are estimated with men and women considered separately). We also see that the relatively higher rate of non-hazardous citations for Blacks relative to Whites is statistically significant. The Hispanic–White differentials in these outcomes are much smaller and statistically insignificant in most of the comparison in Figure 22.

Figure 22

Interracial and Inter-Ethnic Disparities in Citation Rates:
Any Citation, Hazardous Citations, and Non-Hazardous Citations for
All Individuals and By Gender

Percentage Point Difference Relative to Stops of Whites
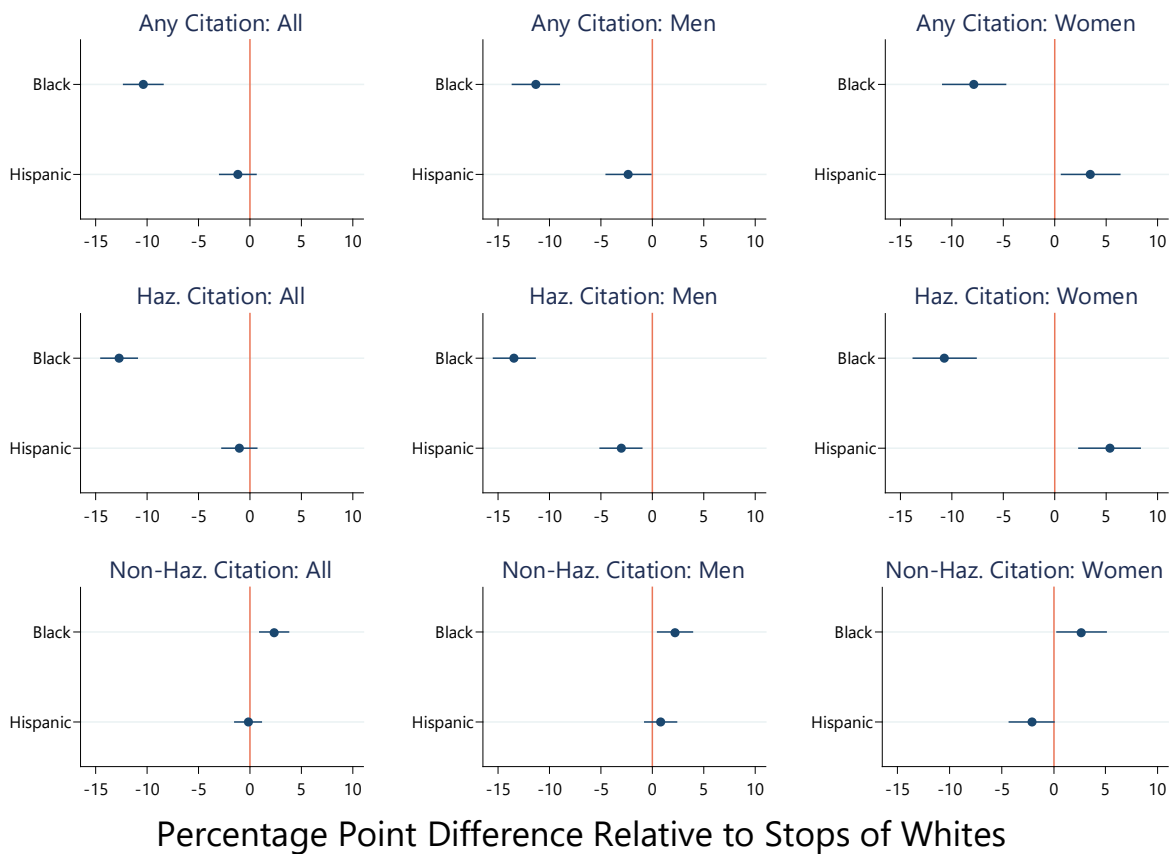
Finally, Figure 23 presents inter-racial and inter-ethnic differences in citation rates by station. The results are fairly similar across the two stations with the exception that in Palmdale, Hispanics are significantly less likely to receive hazardous citations.

Figure 23

Interracial and Inter-Ethnic Disparities in Citation Rates:
Any Citation, Hazardous Citations, and Non-Hazardous Citations by Station

Percentage Point Difference Relative to Stops of Whites
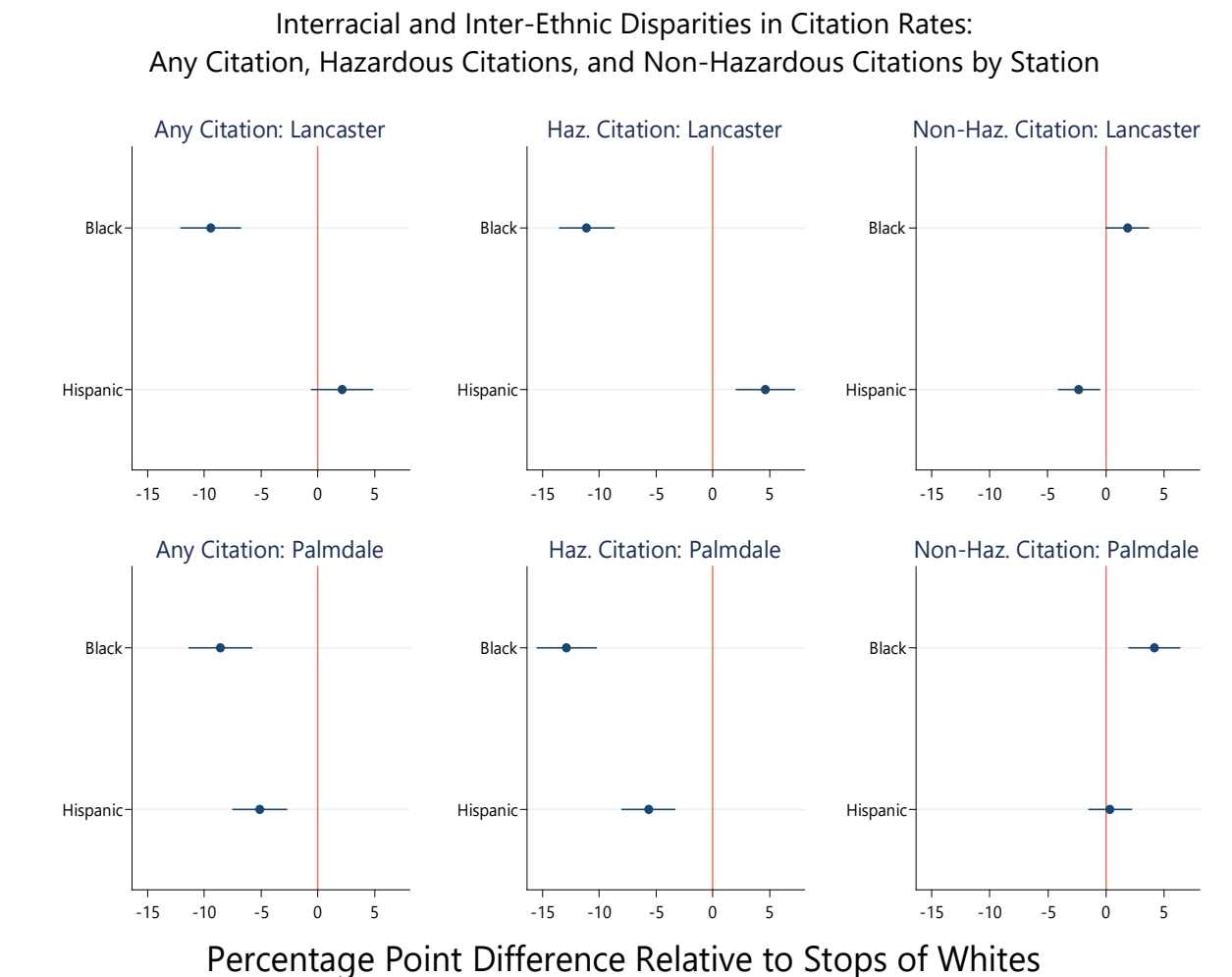
D.   Differences in the Likelihood That a Vehicle Is Impounded or Stored

The final outcome that we analyze is the likelihood that a vehicle is impounded or stored as a result of a stop. For this outcome, we created a dataset that has one observation per stop

and tabulated the impound and storage rates using the race/ethnicity of the person listed as Person #1 on the contact forms.

Table 17 presents the percent of stops where a vehicle is impounded or stored, is impounded, and is stored. We present results for all stops, stops where the person listed as the first contact is male, stops where the primary contact is female, and stops by station. The percent impounded/stored is higher for Black and Hispanic stops relative to White stops. For all stops, the percent where the vehicle is impounded/stored for Blacks is 1.78 times the comparable rate for whites. The comparable ratio for Hispanics relative to whites is 1.56. When we look separately at whether the vehicle is impounded or stored, we see similar interracial and inter-ethnic differentials. By station, the Black–White differentials in these outcomes is very large in Lancaster but small in Palmdale. The Hispanic–White differentials are also larger in Lancaster relative to Palmdale.

Table 17			
Percentage of Stops With Vehicle Impounded or Stored: All Stops by Race/Ethnicity, Stops by Race/Ethnicity and Gender, and Stops by Race/Ethnicity and Station			
Vehicle Disposition	White	Black	Hispanic
Panel A: All Stops			
Impounded/Stored	2.3%	4.1%	3.6%
Impounded	0.6%	1.0%	0.8%
Stored	1.7%	3.1%	2.8%
Panel B: Males			
Impounded/Stored	2.8%	4.1%	3.8%
Impounded	0.7%	1.1%	1.0%
Stored	2.1%	3.0%	2.8%

Table 17			
Percentage of Stops With Vehicle Impounded or Stored: All Stops by Race/Ethnicity, Stops by Race/Ethnicity and Gender, and Stops by Race/Ethnicity and Station			
Vehicle Disposition	**White**	**Black**	**Hispanic**
Panel C: Females			
Impounded/Stored	1.5%	4.1%	3.1%
Impounded	0.5%	0.8%	0.5%
Stored	1.0%	3.2%	2.6%
Panel D: Lancaster			
Impounded/Stored	2.9%	5.7%	4.5%
Impounded	0.9%	1.2%	0.9%
Stored	2.1%	4.5%	3.6%
Panel E: Palmdale			
Impounded/Stored	1.8%	2.1%	3.1%
Impounded	0.4%	0.8%	0.8%
Stored	1.4%	1.3%	2.3%

Figure 24 graphically displays these differentials for all stops and separately by station. Here we focus only on the outcome measuring whether the vehicle is impounded or stored. The Black–White and Hispanic–White differentials in these outcomes are statistically significant when we look at all stops combined. By station, the Black–White differential is significant only in Lancaster. The Hispanic–White differentials are significant in both stations.

Figure 24

Percentage Point Difference in Stops With Vehicle Impounded or
Stored Relative to Stops of Whites by Race/Ethnicity and by Station

All Stops

Lancaster

Palmdale

Percentage Point Difference Relative to Stops of Whites
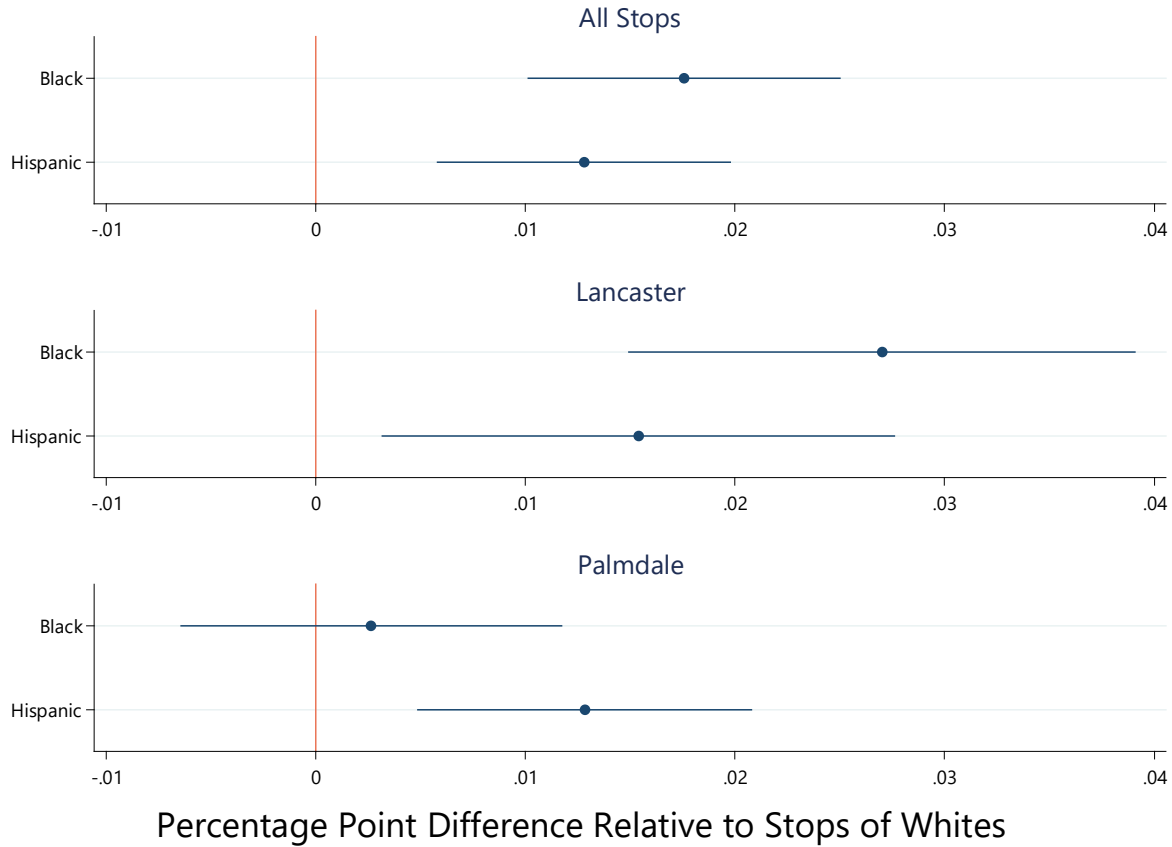
The percent with an impound and a store vehicle may not equal the total due to rounding to the nearest tenth of a percent. The figures are based on the vehicle stops only. We use the race of person listed as Person #1 when more than one citizen involved in the stop. We drop additional persons beyond the first. Hence the unit of analysis used to tabulate the figures above are unique vehicle stops.

VI.   GEOGRAPHIC DISPARITIES IN OUTCOMES AND THE RELATIONSHIP BETWEEN LOCAL CRIME RATES, DEMOGRAPHICS AND STOP OUTCOMES

The Settlement Agreement explicitly mandates that the analysis take into account variation within the AV in localized crime rates and residential demographics. To do so, we matched data on crime rates and average stop outcomes by reporting districts located within the jurisdictions of the Lancaster and Palmdale substations to demographic data from the American Community Survey. While census geography (residential communities measured by census tracts) and reporting districts do not line up, we proportionally matched data from the census, taking into account the geographic overlap between census tract boundaries and reporting district boundaries.[14] We then measured our key outcomes analyzed above at the level of the reporting district and by the race/ethnicity of the person stopped and assessed whether outcomes varied with the crime rate in the reporting district and the demographic characteristics of the reporting district.

Before discussing these patterns, we begin by simply assessing the degree to which members of the public of different races and ethnicities are stopped in different reporting districts. Figure 25 shows the distribution of stops across reporting districts after the districts are ranked from those with the lowest crime rates to those with the highest. Each curve shows how stops for a specific racial/ethnic group are distributed across these districts. The figure shows that Blacks tend to be stopped in reporting districts with higher crime relative to Whites and

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[14] To be specific, population within census tracts were proportionally allocated to reporting districts based on the proportion of the land area covered by the census tract that lies within the geographic boundaries of a reporting district. For example, a census tract that lies entirely within the geographic boundaries of a reporting district would be fully assigned to that reporting district. A census tract with half of its land area in one district and half in another would have half of its population assigned to one district and half to the other. The overlap is gauged by overlaying the geographical shape files for census tracts and LASD reporting districts.

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Hispanics. However, the figures also display a fair degree of overlap, suggesting that Black,

White, and Hispanic people tend to be stopped in similar places.

Figure 25

Distribution of Stops Across Reporting Districts According to
Overall Crime Rates by the Race/Ethnicity of Stopped Individual
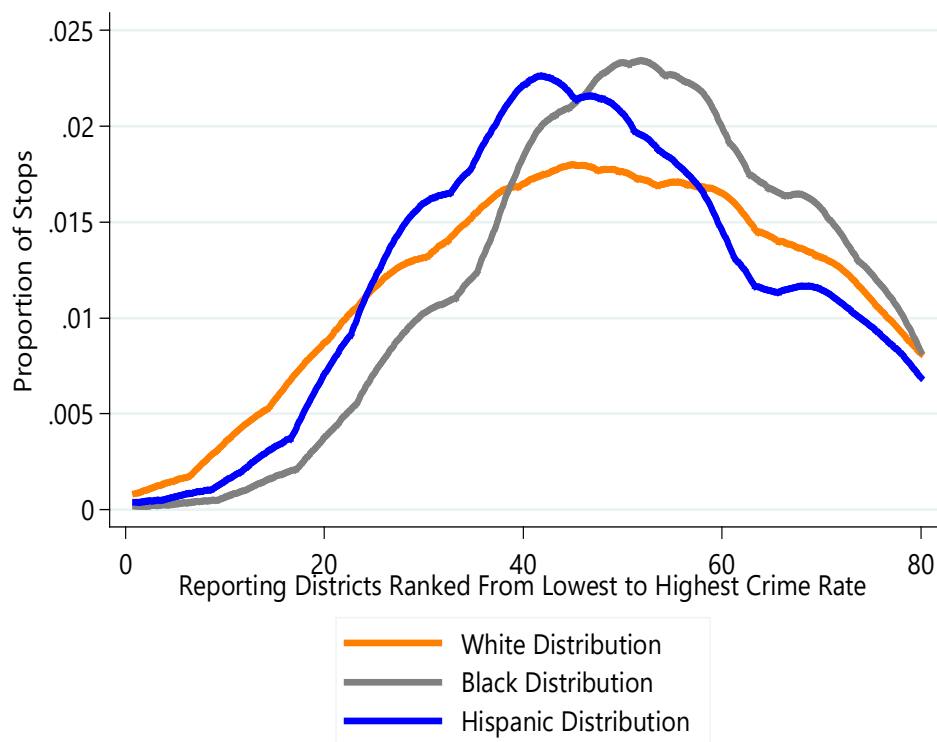
An alternative manner of characterizing differences in where people are stopped is to

calculate how geographically segregated the stops of say Black citizens are from the stops of

White citizens. To measure geographic segregation, demographers commonly employ a

measure known as the dissimilarity index. The index varies from 0 to 100 with 0 being no

segregation (or White and Blacks being stopped in the same reporting districts) and 100 being

total segregation (White and Blacks being stopped in completely different reporting districts).

Moreover, the index has the convenient interpretation of the percent of one group that would have to be relocated geographically to yield an equal spatial distribution. For example, if we were to find that the geographic dissimilarity between the spatial locations of Black and White traffic stops was equal to 32, this would suggest that 32% of stops of either Black people or White people would have to occur in a different reporting district to yield an equal geographic distribution. The geographic dissimilarity between Black and White stops across reporting districts equals 25. The comparable figure for the Hispanic–White comparison is 19, while the figure for the Black–Hispanic comparison is 23. Note that the geographic segregation of stops of people of different races and ethnicities is less than the residential geographic segregation observed within the AV. When we tabulate dissimilarity indices of households across reporting districts, we find a Black–White value of 32, a Hispanic–White value of 35, and a Hispanic–Black value of 23.

Figures 26 and 27 explore visually the relationship between crime rates measured at the level of the reporting district and the percent of residents in the reporting district who are Black (Figure 26) or who are Hispanic (Figure 27). To measure crime rates, we sum violent incidents, property crime incidents, drug-related incidents, and incidents that are flagged as gang related by reporting districts and then use the total population of the reporting district to calculate a crime rate per 100,000 residents. The figures present scatter plots where the crime rate is plotted against the corresponding percent Black or Hispanic. For reference, we label each point by the reporting district number. In both figures, we present separate scatter plots for the reporting districts in Lancaster and Palmdale.

In Figure 26 we see some evidence of higher crime in predominantly Black reporting districts, but the patterns are far from decisive. For violent crime, there are high crime reporting districts in predominantly Black areas (for example, reporting district 1122) as well as in areas with relatively small Black populations (1120). There does appear to be higher average violent crime rates in reporting districts with a higher percent of residents who are black, but the correlation is not particularly strong. There is no visible relationship between property crime rates or drug crime rates and the percent of Black residents. We do see higher incidence of gang related crime per 100,000 in predominantly black reporting districts, but again there are plenty of examples of reporting districts with small Black populations with relatively high rates of gang-related crime. In Figure 27, we see little evidence of a relationship between the percent of Hispanic residents and local crime rates.

Figure 26

Scatter Plot of Reporting District–Level Crime Rates
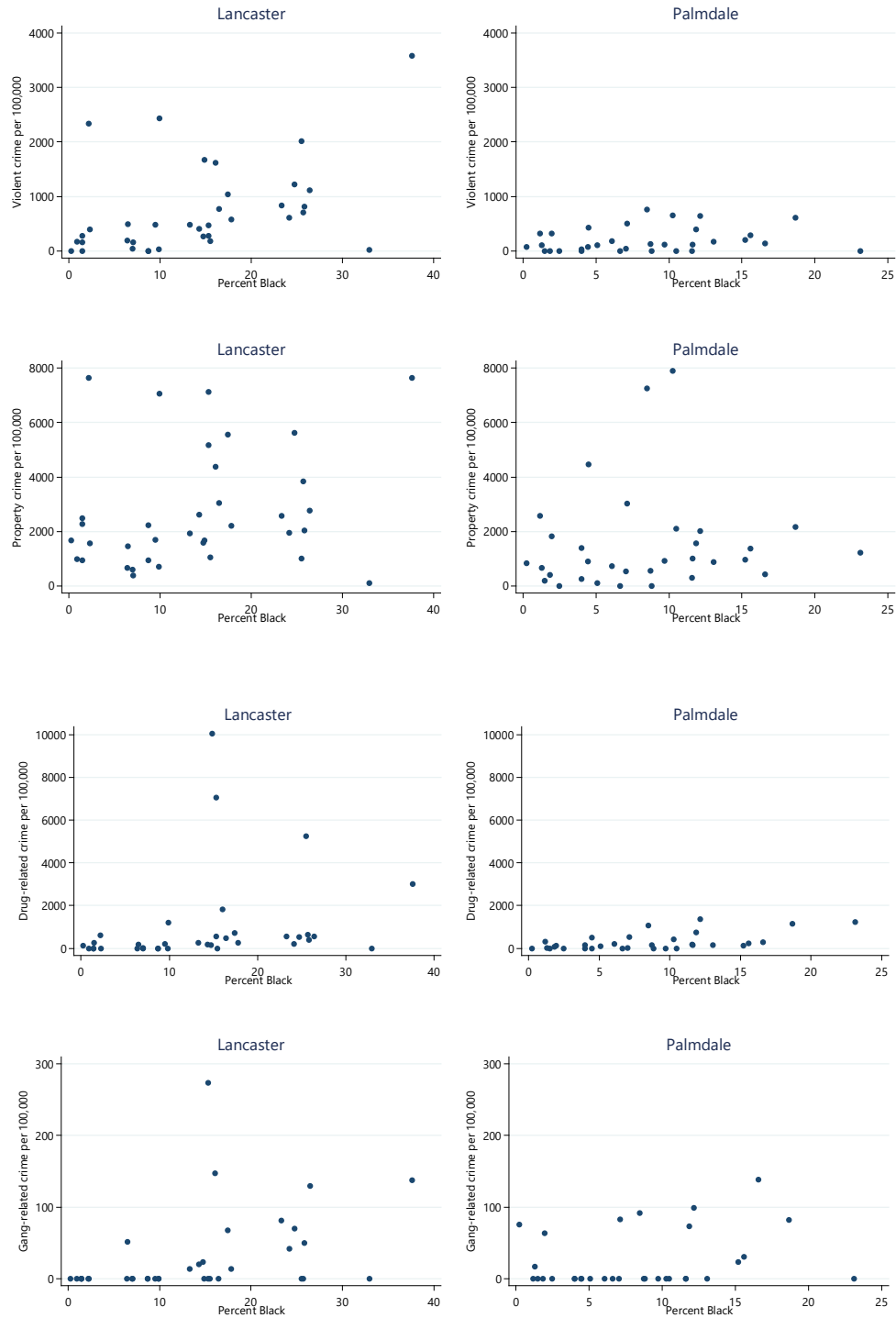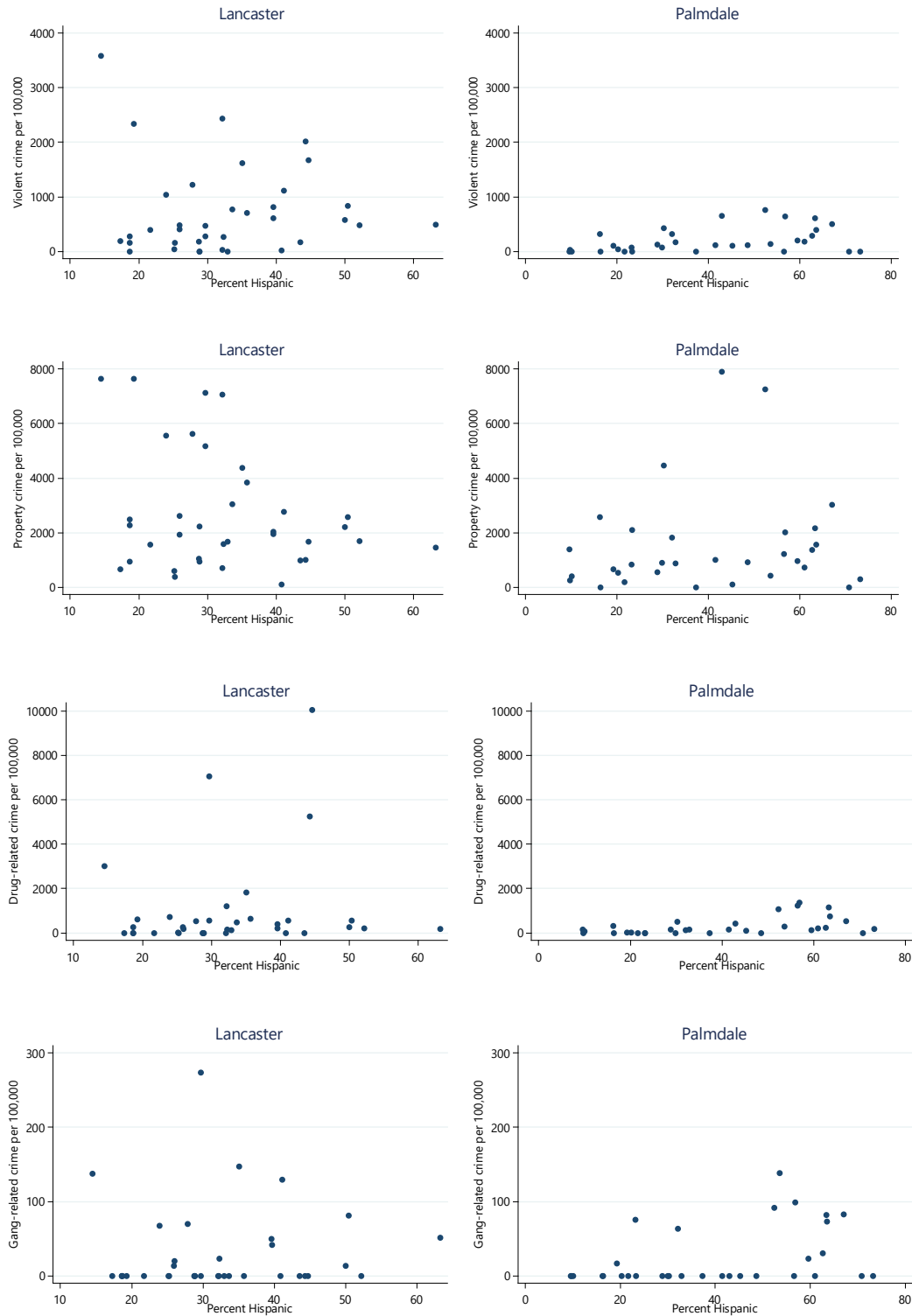Against the Percent of Black Residents

Figure 27

Scatter Plot of Reporting District–Level Crime Rates
Against the Percent of Hispanic Residents

In addition to these scatter plots, we estimated regression models where the dependent variable is the reporting district–level crime rates and the explanatory variables are the percent Black and the percent Hispanic (controlled for simultaneously). For these models we pooled all reporting districts in the two substations together and weighted the regression by the reporting district population. The only regression yielding a significant correlation was for the violent crime rate. For violent crime, there is a significant positive coefficient on the percent of residents who are Black and negative insignificant coefficient on the percent of residents who are Hispanics. These two demographic variables explain 19% of the variation across reporting districts in violent crime rates. By contrast, we find no evidence of statistically significant relationships between crime rates and race and ethnicity for property crimes, drug crimes, and gang-related crimes.

To explore the relationship between reporting district crime rate, demographic composition, and stop outcomes, we conducted the following exercise. First, we stratified reporting districts in the Antelope Valley into 25% slices (quartiles) based on reporting district total crime rate.[15] Hence, the bottom slice (Quartile 1) represents the bottom quarter of stops occurring in reporting districts with the lowest crime rates, the next slice (Quartile 2) represents the quarter of stops occurring in the reporting district with the next to lowest crime rates, and so on. Next, we tabulated average stop outcome for the stops in these groupings, including whether a search occurs, the contraband discovery outcomes, and citation and arrest outcomes. We tabulated these outcomes for each set of reporting districts separately for White, Black, and

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[15] To identify the quartile break points, we weighted the crime rate distribution by the number of stops made in the reporting district.

Hispanic stops. Finally, we compare these outcomes across groupings to assess whether there are any notable patterns between the local crime rate and the outcomes of these stops. In addition to conducting comparisons by groupings of reporting districts into crime rate quartiles, we conducted a comparable analysis where we split reporting districts into quartiles based on the percent of residents in the reporting district who are Black (Table 18).

Table 18 Average Stops Characteristics by Reporting District by Crime Rate and by Proportion of Black Residents				
Outcome	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Panel A: Reporting Districts Ranked From Lowest to Highest Overall Crime Rate				
Search	24.0%	33.2%	30.3%	22.5%
Backseat Detention	9.2%	11.4%	8.3%	5.8%
Contraband	5.8%	6.7%	5.5%	4.6%
Contraband Among Searches	19.8%	19.9%	17.6%	21.8%
Citation/Arrest	65.9%	57.1%	52.4%	68.9%
Arrest	24.7%	32.4%	25.6%	20.8%
Felony Arrest	3.6%	5.5%	5.4%	4.3%
Misdemeanor Arrest	21.9%	27.9%	20.8%	17.4%
Citation	56.3%	43.4%	38.5%	59.0%
% of Stops	30.1%	25.2%	18.4%	26.3%
Panel B: Reporting Districts Ranked From Lowest to Highest Percent of Black Residents				
Search	31.2%	19.5%	30.3%	29.9%
Backseat Detention	11.2%	7.3%	9.2%	7.1%
Contraband	8.0%	4.0%	5.8%	5.1%
Contraband Among Searches	25.6%	18.8%	18.6%	16.4%
Citation/Arrest	61.0%	70.1%	60.5%	52.4%
Arrest	29.7%	20.3%	28.3%	26.1%
Felony Arrest	5.2%	2.9%	5.2%	5.6%
Misdemeanor Arrest	25.5%	17.9%	24.3%	21.2%
Citation	48.1%	62.8%	47.4%	38.2%
% of Stops	24.3%	30.7%	25.4%	19.6%

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Table 19 presents the comparisons for reporting districts stratified by crime rates. Panel A presents average outcomes for White stops, Panel B presents average outcomes for Black stops, while Panel C presents average outcomes for Hispanic stops. We see very few systematic relationships between stop outcomes and local area crime rates. There is no single outcome for any of the three groups where the average value varies uniformly (that is to say, increases with higher crime or decreases with higher crime) with the regional crime rate.

Table 19				
Average Stops Characteristics and Outcomes by Reporting District From Lowest to Highest Crime Quartile by Race/Ethnicity				
Outcome	**Quartile 1**	**Quartile 2**	**Quartile 3**	**Quartile 4**
Panel A: White Stops				
Search	22.9%	36.0%	28.6%	21.3%
Backseat Detention	8.1%	12.3%	7.0%	5.4%
Contraband	6.8%	8.1%	7.7%	4.6%
Contraband Among Searches	20.6%	22.1%	25.6%	22.8%
Citation/Arrest	69.7%	59.9%	58.2%	72.5%
Arrest	20.4%	29.4%	28.2%	18.2%
Felony Arrest	4.8%	6.5%	7.5%	4.0%
Misdemeanor Arrest	16.8%	23.1%	21.7%	14.7%
Citation	59.6%	44.6%	42.4%	62.1%
% of Stops	32.4%	22.2%	17.4%	28.1%
Panel B: Black Stops				
Search	25.2%	32.4%	35.1%	28.4%
Backseat Detention	9.5%	11.4%	9.0%	6.8%
Contraband	4.0%	5.4%	4.3%	5.2%
Contraband Among Searches	13.3%	17.2%	12.0%	19.3%
Citation/Arrest	59.9%	56.4%	46.9%	61.6%
Arrest	29.7%	36.6%	27.7%	26.3%
Felony Arrest	2.7%	5.2%	4.9%	5.3%
Misdemeanor Arrest	27.6%	32.6%	23.3%	22.5%
Citation	50.9%	42.4%	31.9%	49.1%

Table 19				
Average Stops Characteristics and Outcomes by Reporting District From Lowest to Highest Crime Quartile by Race/Ethnicity				
Outcome	**Quartile 1**	**Quartile 2**	**Quartile 3**	**Quartile 4**
% of Stops	21.5%	25.2%	24.1%	29.2%
Panel C: Hispanic Stops				
Search	24.8%	33.2%	26.5%	18.9%
Backseat Detention	9.7%	11.2%	8.3%	5.2%
Contraband	6.2%	7.1%	5.8%	4.3%
Contraband Among Searches	21.5%	20.3%	21.5%	22.7%
Citation/Arrest	66.3%	55.7%	55.1%	72.6%
Arrest	25.1%	31.2%	22.4%	18.2%
Felony Arrest	3.5%	5.4%	4.9%	3.7%
Misdemeanor Arrest	22.4%	26.9%	18.0%	15.1%
Citation	56.6%	42.9%	43.2%	65.0%
% of Stops	35.1%	27.0%	14.7%	23.1%

Table 20 provides the comparable analysis where the reporting districts are split into groups according to the percent of residents who are Black in those districts. For most of the outcomes, we do not observe any systematic relationships between the average outcome value and which quartiles of the distribution the stop occurs. However, for stops of Blacks and Whites where a search occurs, we do see some evidence of lower contraband discovery rates for searches that are occurring in areas with proportionally larger Black populations.

Outcome	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Table 20				
Average Stops Characteristics and Outcomes by Reporting District From Lowest to Highest Quartile: Proportion of Residents Who Are Black Among Those Stopped				
Panel A: White Stops				
Search	32.8%	18.6%	28.8%	28.6%
Backseat Detention	11.1%	6.6%	8.4%	5.6%
Contraband	10.1%	4.6%	6.5%	5.4%
Contraband Among Searches	27.2%	21.3%	21.7%	17.4%
Citation/Arrest	61.9%	74.9%	66.4%	54.8%
Arrest	29.5%	15.9%	25.9%	24.1%
Felony Arrest	7.5%	3.5%	5.2%	6.3%
Misdemeanor Arrest	23.1%	13.0%	21.4%	18.5%
Citation	47.2%	66.8%	52.2%	40.1%
% of Stops	27.7%	34.9%	21.6%	15.8%
Panel B: Black Stops				
Search	31.8%	22.3%	31.7%	34.5%
Backseat Detention	12.2%	7.9%	9.2%	8.0%
Contraband	5.7%	3.6%	5.2%	4.7%
Contraband Among Searches	19.8%	14.6%	16.1%	13.8%
Citation/Arrest	57.6%	64.8%	55.7%	49.4%
Arrest	31.3%	26.5%	31.4%	30.3%
Felony Arrest	3.7%	3.3%	5.3%	5.5%
Misdemeanor Arrest	28.2%	24.0%	27.6%	25.7%
Citation	45.7%	56.6%	41.7%	33.9%
% of Stops	17.5%	23.3%	30.7%	28.5%
Panel C: Hispanic Stops				
Search	30.7%	19.3%	30.5%	24.9%
Backseat Detention	11.0%	7.6%	9.8%	6.6%
Contraband	8.1%	4.1%	6.3%	5.7%
Contraband Among Searches	24.9%	20.2%	19.8%	20.3%
Citation/Arrest	61.5%	69.9%	61.4%	54.6%
Arrest	29.8%	20.1%	27.2%	22.0%
Felony Arrest	4.9%	2.6%	5.3%	5.4%

Table 20

Average Stops Characteristics and Outcomes by Reporting District From Lowest to Highest Quartile: Proportion of Residents Who Are Black Among Those Stopped				
Outcome	**Quartile 1**	**Quartile 2**	**Quartile 3**	**Quartile 4**
Misdemeanor Arrest	26.0%	17.9%	23.2%	17.1%
Citation	48.9%	63.3%	49.5%	42.2%
% of Stops	27.8%	33.6%	23.5%	15.1%

VII.   IDENTIFYING OUTLIER DEPUTIES

The Settlement Agreement calls for an analysis of whether certain reporting districts and certain deputies stand out in terms of the key outcomes analyzed here. We have seen in the results above that controlling for reporting district does not explain many of the disparities that we see. Moreover, we observed in the previous section that when ordered by crime rates or the racial/ethnic composition of the resident population, we see little evidence of systematic relationships between outcomes and the social geography of the AV.

We do see that Black people in the AV tend to be stopped to some degree by different deputies. These deputies tend to search people they stop at a higher rate, use backseat detention relatively frequently, and frequently ask people about their probation or parole status. In fact, we find above that controlling for the involved deputies explains nearly all of the Black–White disparities in several outcomes (though not for the differential contraband discovery rates). We also find that the deputies who use these tactics frequently tend to do so in a race neutral manner. For example, those deputies who frequently ask Black people about their community corrections status tend to do so at similar rates when they stop White and Hispanic people.

This summary describes the relationships that we are observing on average across deputies. Of course, it is possible that some deputies are statistical outliers in terms of stop outcomes in the sense that, for a specific outcome, the average for the deputy differs from other deputies with comparable assignments. While there may be legitimate explanations for such outlier outcomes, being able to identify outliers that may require targeted intervention is clearly an important managerial tool.

In this section, we present results for a deputy-outlier analysis for three outcomes: (1) the percent of stops that the deputy makes that are of Blacks, (2) the percent of stops involving the search of a Black person, and (3) the percent of stops where a Black person is searched and where no contraband is discovered. Technically, we can reproduce this analysis for any outcome with the appropriate data. Here we first describe our method and then present the analytical results for these three outcomes.

We should caution that the analysis presented here is based on only the six months of data. Conducting this analysis requires that we have sufficient numbers of stops per deputy. While we observed 361 deputies involved in stops made in the AV, the analysis below is restricted to the 136 deputies for whom we observe at least 50 stops. Having data for a longer time period (for example, at least a year) would improve the precision of this analysis and likely permit analysis of more deputies.

For each deputy we observe in the data with at least 50 stops, we use the station, shift, and unit to which the officer was assigned for each stop the officer made over the six month period to first construct a comparison sample of stops made by other deputies assigned to the same station, the same shift, and the same unit. This comparison sample excludes stops

attributable to other deputies but with JULIAN codes that match those of the deputy for which

we are generating a comparison (that is to say, we drop all stops involving a partner or a call for

service where the same deputies participate in similar stops). This comparison sample also

permits proportional assignment across unit or shift in the event that the deputy of focus works

across different units or shifts for the period we see. The average value for the comparison

sample for a given outcome provides the internal benchmark for the deputy in question. We

identify internal benchmark groups for all deputies who make at least 50 stops.

Next, we calculate the percentage point difference in the outcomes between each

deputy and the deputy's internal benchmark average and scale this difference relative to the

margin of error. The larger this standardized deviation, the more likely the deputy is an outlier

for the outcome in question. We then choose a critical value against which we compare these

standardized deviations. The critical value we employ adjusts for the family-wise error rate

associated with testing multiple hypotheses.[16]

Figure 28 graphically displays the results of this analysis for the three outcomes we

analyze. The top figure presents the results for the percent of stops that each deputy makes

where the citizen is Black. The figure displays the number of deputies in bins defined by the

difference between the individual deputy's value and the internal benchmark. These disparities

are standardized by the variability of the difference estimate. Positive values indicate deputies

who have averages that are greater than their benchmarks, while negative values are for

deputies with values that are less than the benchmark. The vertical lines measure a deviation

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[16] For details, we follow closely the methodology laid out in Ridgeway, G., and MacDonald, J. (2009). Doubly robust internal benchmarking and false discovery rates for detecting racial bias in police stops." *Journal of the American Statistical Association, 104*(486), 661–668. The one deviation is that we use the entropy-match estimator rather than boosted logistic regression to generate the weights used to reweight the observations in the comparison sample.

beyond which the likelihood of observing such disparities due to pure chance is no greater than 5%. Hence, the figure shows seven deputies with deviations from their internal benchmark that would flag them as outliers. In other words, the percent of stops that are of Blacks for these deputies is higher relative to stops made by deputies working at comparable stations, at the same shift, and assigned to the same unit. Moreover, it is unlikely that this higher value is due to chance alone.

Figure 28

Empirical Distribution of Deputy-Specific Stop Outcomes Relative to Internal Benchmarks

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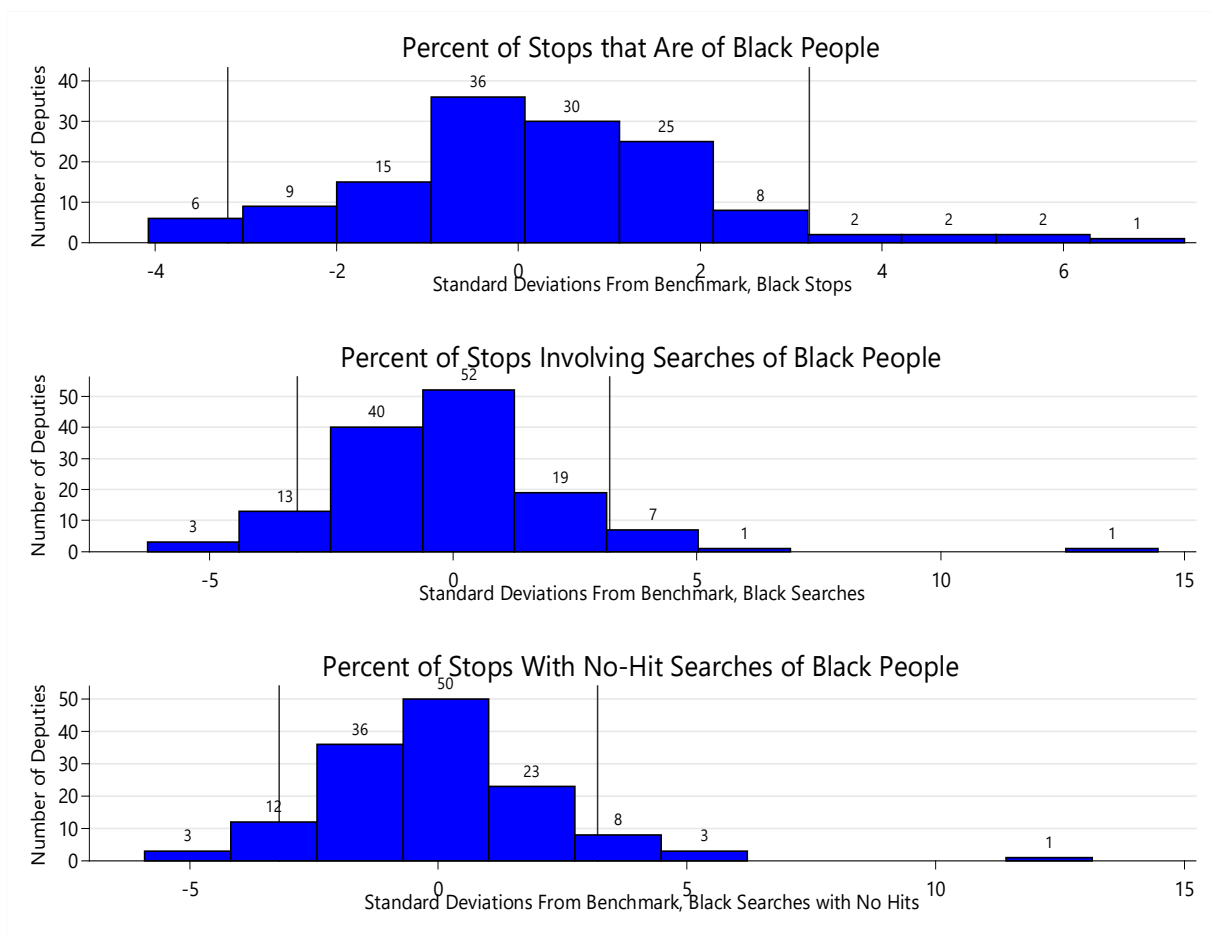
Regarding the percent of stops that involve a Black person being searched, we identify nine outliers. For the percent of stops that involve a no-hit search of a Black person, there are seven outliers. Two deputies are outliers on all three outcomes, and an additional four deputies are outliers for two of these outcomes (percent of stops involving a Black search and the percent of stops involving a no-hit search of a Black person).

VIII. CONCLUSIONS

Our findings indicate that Blacks are much more likely to be stopped, are more likely to be searched when stopped, are more likely to experience a backseat detention, and are more likely to be asked whether they on probation or parole. Regarding the latter outcome, similar proportions of Whites, Hispanics, and Blacks asked about their community corrections status are indeed on probation or parole. However, the higher rate at which this question is asked of Black residents in conjunction with their relatively high stop rate indicates that a larger share of the Black population who are not on community corrections has had the recent experience of being stopped by a sheriff's deputy and asked if they are on probation or parole.

Regarding stop outcomes, we observe substantially lower rates of contraband discovery among searches of Black citizens relative to searches of Hispanics and Whites. This is true for nearly all contraband types (e.g., drugs, illegal property) and for the stated authority for the search (e.g., incident to arrest, probation/parole status). Stops of Black people are less likely to result in a citation or arrest, though stops of Blacks are more likely to result in a misdemeanor arrest. Our analysis of the narrative fields of random samples of misdemeanor arrests by race revealed that large proportions of the misdemeanor arrests of Blacks involve driving without a

license or on a suspended license, expired registration, and or lack of insurance. A fairly large portion of misdemeanor arrests for all race/ethnic groups also involves a citation and release for outstanding warrants.

For several of these stop characteristics and outcomes, we presented multivariate analyses in an attempt to understand the factors driving the differences we observe. For most of the outcomes, variation in where the stops occur explains little of the disparities by race. Our analysis that focuses specifically on geography finds little evidence of systematic difference in stop outcomes when reporting districts are grouped by either local crime rates or by the racial composition of the resident population. The relatively small role of geography is perhaps not too surprising given the large geographic overlap between the locations where Black, White, and Hispanic people are stopped in the valley.

In contrast to the minimal role of geography, we find that differences in which deputies are stopping Black residents as opposed to Whites and Hispanics explain much of the intergroup disparities that we find. Black people are more likely to be stopped by deputies who frequently conduct searches, detain people in the backseat, and ask whether the stopped person is on probation and parole. Given the importance of this factor in describing these disparities, here we present one additional visualization that illustrates deputy-specific patterns. In Figure 29, we first tabulate for each deputy the percent of stops of White people where the deputy employs backseat detention, where the deputy conducts a search, and where the deputy asks about the person's community correction status.[17] We then group deputies according to their

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[17] We rank deputies according to their propensity to use these tactics for White people only to ensure that the likelihood of using these tools is not driven by the racial/ethnic composition of their stops.

propensities to use these tactics during stops of Whites. The middle figure then shows how the

proportion of stops of Whites (solid blue bars) and Blacks (bars outlined in red) are distributed

across deputies after they are ordered into groups by their propensity to use these tactics

during stops of White people. For all three outcomes, we see that White people are more likely

to be stopped by deputies who never or rarely use these tools (as can be seen by the taller blue

bars relative to the red bars for the leftmost grouping in each figure). We also see that Blacks

are more likely to be stopped by deputies who more frequently use backseat detentions,

conduct searches, and ask about probation/parole status (as can be seen by the relatively taller

red-outlined bars to the right of each figure). While there is substantial overlap between the

Black and White distributions across deputies, there is clear skewing of the stops of Black people

toward deputies who search more, who more frequently ask about community corrections, and

who use backseat detentions.

Figure 29

Distribution of Stops of White and Black Individuals by
Deputy Propensity to Use Backseat Detentions, Conduct Searches, and
Ask About Parole/Probation Status
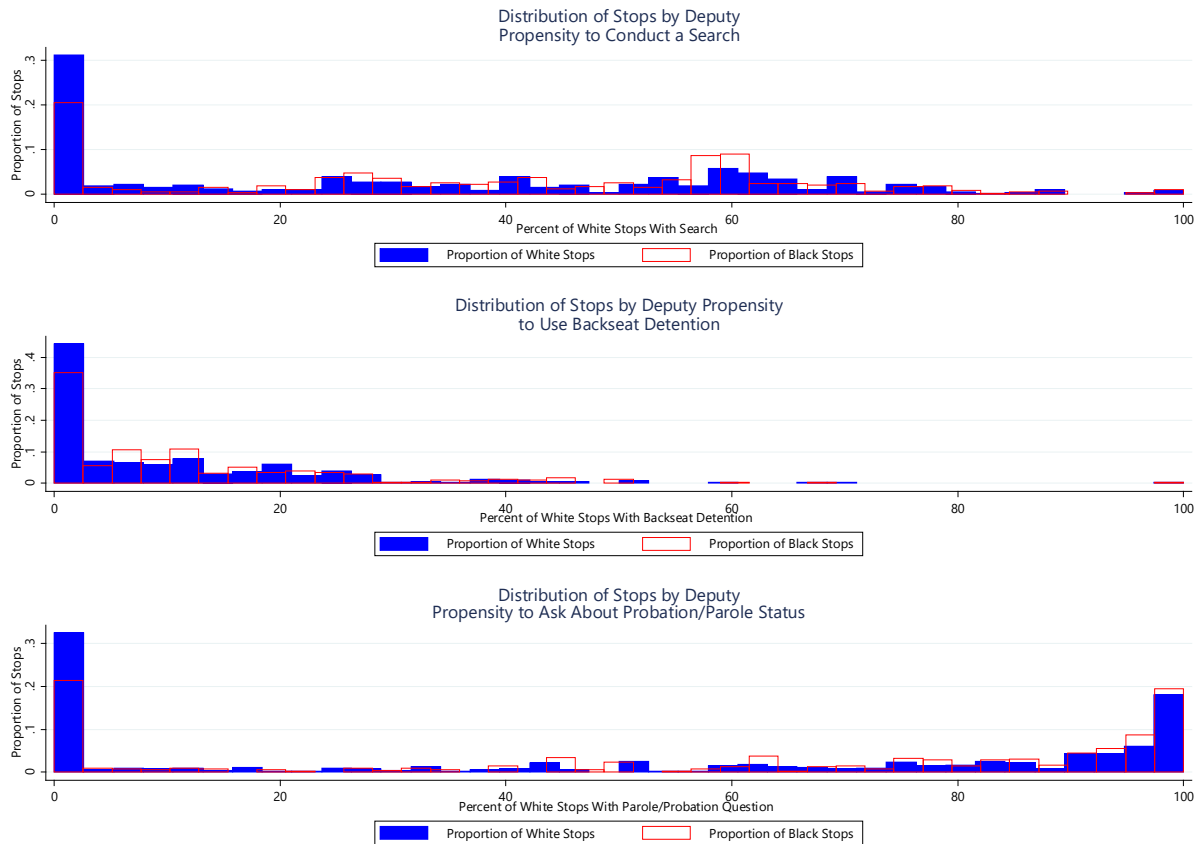
We must note that deputies who frequently use these tactics during their stops on average do so in a race neutral manner. In other words, deputies who frequently ask Black people about their community corrections status or who frequently initiate searches during stops of Black people behave similarly during stops of White and Hispanic people. Hence, among stops made by specific deputies, the data suggest that, on average, members of the public from different racial and ethnic groups are treated equally. Moreover, our outlier analysis finds relatively few instances where deputy-specific outcomes differ substantially from our

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constructed internal benchmarks. However, the cross-deputy differences in tactics deployed during stops do generate disparate impacts, with Blacks experiencing more stops, searches, backseat detentions, and probing about their community correction status.

The relatively lower hit rate for searches of Black people cannot be explained by the deputies involved, the reporting district where the search occurs, or other characteristics such as the reason for the stop or the state authority for the search.

The analysis suggests several possible areas where action may be taken to narrow disparities in stops and stop outcomes. First, we document that Blacks are considerably more likely to be stopped for registration or equipment violations relative to White and Hispanic residents. This disparity may reflect a higher likelihood of such violations among Blacks, a higher likelihood that deputies stop Blacks for such violations, or some combination of the two. To be sure, racial disparities in the incidence of expired registration tags or an expired license are beyond the control of LASD deputies. However, some concerted and coordinated inter-agency effort (for example, between LASD and the DMV) to close such gaps would likely narrow racial disparities in the likelihood of being stopped and certainly racial disparities in misdemeanor arrests. Beyond such an effort, perhaps a station-level review of policy pertaining to such stops and when such stops should be escalated to searches is merited given (1) the high proportion of stops of Blacks that fall in this category, (2) the high search rate for Blacks, and (3) the relative low contraband discovery rates for searches of Blacks.

Beyond differences in the reasons for stops, our analysis suggests that heterogeneity across deputies in how stops proceed in conjunction with differential exposure to different deputies contributes to key racial disparities. It may be the case that differences by deputy

reflect differential unit assignment or differences in the areas that are being policed. Moreover, it may be the case that these disparities can be justified by law enforcement need and public safety considerations. Nonetheless, some review regarding the discretion afforded in the use of searches, or asking about probation/parole status (or perhaps some stationwide guidance on when these tools may not be necessary) may help narrow some of the disparities we document here.